

Thursday, February 4, 1982

NEWS BRIEF

Viewdata launch

IBM has launched a viewdata service designed to make its bureau network accessible to small and medium-sized organisations. Telephone concentrators in the major UK business centres make the bureau widely accessible by local call and the company believes that by offering support for viewdata terminals it will find a large market among companies with salesmen or engineers in the field, dealer networks or distributed sites.

Challenge to 4321

MINI manufacturer Wang is chipping away at IBM's market with the release of an entry level version of its 32-bit VS "supermini", the VS 100. It is known as the VS 90, and is said to give twice the performance of IBM's 4321, at 85% of the price.

Sperry slump

PROFITS were down 40% at Sperry Corp. Sperry Univac's parent, for the period ended December 31, 1981. Net profit was \$47.3 million. Profits for the same quarter of 1980 were \$79.4 million. A company spokesman said the recession, combined with a weak dollar, had badly hit the company's trading results, particularly in relation to overseas subsidiaries.

Banking blueprint

FRANCE'S State-owned Credit Lyonnais Bank has asked Slogos, a computer services firm in which it has an 80% stake, to produce a blueprint for a terminal network which will enable small firms to consult their cash balances on their own individual screens.

NAS shows interest in troubled Magnuson

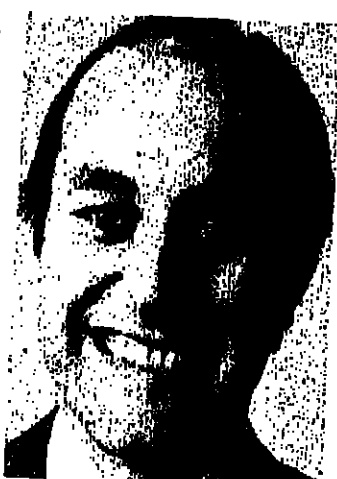
by Boris Sedacca
RENEWED interest in Magnuson, a leading IBM plug-compatible processor manufacturer, is likely to be shown by another PCM, National Advanced Systems, following the collapse of merger talks with Storage Technology.

Magnuson's problems have been compounded by losses of over \$10 million on a turnover of under \$5 million for the last quarter of 1981, followed by the resignation of Joseph Hitt as president and his replacement by Charles "Chuck" Cole, an academic from the University of Southern California's School of Business faculty, as acting president. Cole has been on the Magnuson board since May 1981.

NAS is keeping its cards close to its chest as far as any possible Magnuson takeover is concerned.

"It does the PCM industry no good when we see a competitor fall by the wayside," said John Clements, managing director at NAS.

"We are always interested in looking at our competitors' cus-



CLEMENTS... "No good to see a competitor fall by the wayside."

tomer bases but it is a delicate situation. However, it does not figure in our plans at the moment. We already have a sizeable worldwide customer base in that machine range - in the one million instruction per second class."

Chief's departure may split Zilog

by Claire Gooding

US components and systems manufacturer Zilog may be split by its parent Exxon into separate halves, following the sudden departure of several of its top managers, including president Manuel Fernandez.

Zilog has been ploughing money into research and development rather than profit-making, particularly on the systems side, which now accounts for half its business.

However, Fernandez denied that he had resigned, because Exxon has turned down his 1982

business plan. In a memo released to Zilog employees last Friday, he said he was leaving for an opportunity "too good to let pass" in building his own computer company.

Fernandez will be joined in the new venture by two other top Zilog executives, Wayne Sennett, vice-president of Strategic Planning, and John Banning, a manager in the components division.

It was Sennett who suggested that Exxon may be dividing the components and systems division

Another possibility being discussed in the industry is that Carl Amdahl, one of the founders of Magnuson, may return to the company despite plans to set up, with his father Gene Amdahl, a manufacturing operation in Ireland called Trilogy.

One source commented: "It is up to their bankers now because they owe another \$16 million. If I was their banker I would try to force a merger on them. The concept of a plug compatible machine is sound, but if you execute poorly, no matter how sound your plan in theory, it will not work out."

He added that Magnuson's new machine which the company needs to compete with the IBM 4341 was late in coming and unreliable because it had to be rushed through manufacturing before it was ready. "It was a textbook mistake - high overheads and their product was not ready on time so they had poor cash flow."

"NAS had been interested in acquiring Magnuson, so their interest could be renewed," he said.

46 staff shed at Nexos

by Boris Sedacca

TROUBLED office automation company Nexos has made 46 employees redundant following the recent agreement to sell off the marketing rights of its word processor to ICL.

A spokesman for the State-owned British Technology Group which controls Nexos said that the redundancies were an "inevitable consequence of negotiations".

Last Friday, 46 Nexos employees received a letter from the company personnel manager which terminated their employment forthwith.

The redundancies have hit Nexos employees throughout the country, including Nexos offices in Manchester, Birmingham, Thame, Bristol and London. They are mainly in marketing and sales



HOOTON... Resigned sales and marketing director.

positions, although some financial and accounting jobs may have been affected, according to the BTG spokesman.

Many of the 130 remaining employees are service engineers, as BTG says most are likely to need their jobs.

Nexos sales and marketing director Peter Hooton has resigned by mutual agreement with the company. Hooton had joined Nexos after 20 years at IBM where he was responsible for marketing and business planning.

Dollar boost for ICL

From front page

pressed cautious optimism on the progress being made towards profitability at ICL's annual meeting earlier this week.

The American order comes on top of the 50% increase in sales achieved there in 1981, and the European and UK deals will be particularly welcomed as sales dropped by £25 million in these areas combined last year.

In a new move, the company is shortly expected to announce a

new model in the ME29 range, the ME29 model 55. It will have new main store capacity, better working capability and will feature IBM-compatible software allowing the machine to be used in Systems Network Architecture (SNA) networks.

The complete package will be on the market in October.

The price of the ageing System 10 is understood to have been reduced by 30% recently as an indication that the range is nearing the end of its life.

Users win big cut in IBM software fees

by Maggie McLenan
NAGGING from users has finally made IBM change the way it charges for licensed software products and program maintenance.

As a result big savings could be in store for large mainframe installations with multiple sites, a welcome relief to the generally upward trend of software prices.

A new scheme extends IBM's Distributed Systems Licence Option (DSLO) from software on the 8100 and Systems 3, 34, and 38 to VM, VSE, and MVS licensed program products. The effect is to limit IBM's contact to one central location for each of its customers, and allow the user to co-ordinate the maintenance of his own software.

This means he pays IBM a reduced licence and maintenance fee for any program updates.

"We worked on IBM rather like a dripping tap," said George Goodwin, information systems manager of Wavind Plastics and spokesman for the IBM Users Group. "When IBM charged an all-inclusive price for software, prices went up frequently because of the maintenance costs. This is a

sensible strategy; someone like ICI with lots of subsidiaries may not want maintenance on every site, and under this system they will get a reduction of fees."

IBM's maintenance costs are cut because of the reduction in the number of systems programmers needed for customer support. The new scheme puts responsibility for copying and distribution of programs on to the user. Service updates and documentation will

also be supplied to only one installation.

"A lot of customers felt that if they had multiple copies of programs they were being excessively penalised," confirmed Maris Romanis, systems support manager of National Advanced Systems, supplier of IBM program-compatible systems and software.

Under the extended DSLO scheme, IBM offers customers a 25% reduction in the licence fee for second and subsequent copies of a licensed program, and will deliver one copy only of the program, service updates and licensed documentation to a single location.

A further change to the pricing structure for maintenance of software will benefit customers running the same software component on more than one processor. If the customer is prepared to accept IBM customer engineering support to a single machine location, a maximum of 160% of the base local program support agreement fee will be charged to cover any number of machines running the same software.



GOODWIN... Dripping tap forced IBM to change software charges.

IT must depend on private enterprise, says Minister

by Robert Parry

CALLS for a Japanese-style approach to information technology have been rebuffed by IT Minister Kenneth Baker, who insists that private industry must make the UK a world competitor.

Citing a UK trade deficit of £230 million in information technology for 1980, Baker has told the National Economic Development Council that by 1990 the figure

could reach £1,000 million. Most of the imbalance comes from trade with the US and Japan, but it is up to private enterprise to combat it. The government's role should be "essentially catalytic", and it should set up the "infrastructure and domestic environment in which the IT industries can achieve growth", the Minister said. But he called on managers in the investment and procurement areas to "take investment and procurement decisions with the long-term objectives of the UK industry in mind".

UK companies held only 1.5 per cent of the world's information technology market excluding Britain, and until this country pursues business on an international scale it will be unable to compete. His uncompromising message came in a written reply to NEDC last week following the report from its Electronics Economic Development Committee.

The report was written last October by its chairman, Sir Henry Chilver, who demanded a concerted approach by the UK government and industry to promote information technology. Baker criticised the paper for seeking government initiatives without recommending action from industry. "If the aim of increased international competitiveness is to be achieved, it is vital that the role of industry and the finance sector should be fully understood and accepted. The involvement of government should not be allowed to mask the need for initiatives from the private sector."

The BEDEC paper proposed that public sector resources should be concentrated on companies best placed to build internationally competitive positions. Baker replied that selectivity was already a feature of the government's approach.

INSIDE THIS WEEK'S ISSUE

- IT depends on private sector..... 2
- IBM boosts bureau business in UK..... 3
- Unions back new technology..... 4
- Revival in UK micro chip market..... 5
- Boredom and eye strain for operators..... 13

- Battle of giants..... 3
- Shopping by micro..... 4
- Micro News..... 7
- Software File..... 8
- Company News..... 9
- Gib's Mythology..... 10
- Downtime by Chad..... 10
- Letters..... 11
- Liveware File..... 11
- Op Spot..... 12/13
- Programmer's Page..... 14
- Puzzler..... 14
- Computers preview..... 16
- Books/Play..... 18
- People/Play..... 19
- Products..... 20/21
- Marketplace..... 22/23
- Sales Bit..... 46
- Jobs: Pages 24/47

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Portable debugging

From front page

witt, marketing manager for Micro Focus, "and we always are."

The facilities provided by Animator are invaluable in testing and debugging, which Micro Focus estimates to be responsible for 67% of programming effort at present.

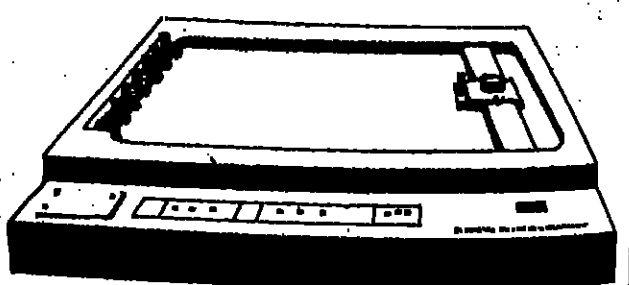
Assembler and Basic programmers have always had the perks that come with an interactive language. They are able to make changes and run the program immediately, with control breaks to examine values along the route.

With a high-level language like Cobol, however, there are tedious steps to be followed in the creation of test data, test running and verification, often themselves

involving a great deal of programming time. Micro Focus is providing a high-level "harness" for such jobs. Program creation and maintenance tools are not themselves new, but the difference in these is that they are portable.

The breakthrough that Micro Focus has made is that all their tools are portable. To write a high level systems tool in Cobol rather than assembly code preserves the portability which made CICS Cobol popular in the first place.

Both Animator and Slideshow have been written with ease of use, as top priority, and are likely to reach beyond the micro market into large mainframe installations.



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TW11 8TD
Registered Office
Tel: 01-877 1171/8
(Telex: 929728)

NEWS BRIEF

Rate support 'time' cost govt £240,000

THE estimated cost of computer time (usage and storage) incurred by the Department of the Environment in preparing the 1982/83 rate support grant settlement was estimated to be £241,744 up to the end of December.

More than £8,000 represented expenditure on the department's own computer facilities, Tom King, Secretary of State for the Environment, told MPs in a written Commons answer.

Viewdata boost

IBM has made another move into viewdata by announcing last week that its UK bureau services will be accessible from viewdata terminals. The bureau's processing costs have long been acceptable for a wide range of business applications, according to the company, and now cheap terminals which can be used for several separate services will remove the last barrier to a vast market among retailers and other small businesses. (See page 3.)

Logabax deal

LOGABAX UK has signed an agreement to market Systime's Series 300 microcomputer. The deal will make Logabax one of the major distributors of the Intel 8086 system released by Systime last year.

Computastars

THIS year's sports competition for computer users and the computer industry is under way, with the announcement of the 1982 Computastars. Four regional heats, a national final and a European final are included in a programme sponsored as usual by Computer Weekly. Entry details, page 16.



GUNNINGHAM... "We could eat commerce."

Councils urged to sell micro software

by Claire Gooding

LOCAL councils are being urged by computer advisers to sell their home-produced microcomputer software to other users.

The Local Authorities Management Services and Computer Committee (LAMSC) is recommending that a publishing house for microcomputer software packages written by local councils be set up to sell them to other councils and even to users outside.

Lamasc's proposal comes in a report which completes the last phase of a long enquiry into the impact of microcomputers on local government. The main concern is to make the most of existing facilities, so that the £22,000 million local government will be spending this year will be used effectively.

place as soon as possible, across mainframe and microcomputer fields.

As well as many routine local authority applications already implemented in a variety of ways on different mainframes, Lamasc cites another 2,500 potential new applications which are made possible by the advent of microcomputers.

"It makes sound common sense to co-operate," said Roy Barnes, Lamasc director. "There are over 3,300 different applications on all sorts of mainframes and other

• Turn to back page

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Universal into Ulster

A hand is shown interacting with a 3D cube-shaped interface. The cube has a grid of buttons on its top face. In the background, a computer monitor is visible.



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Independent software house strikes it rich

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Intel to sample two 16-bit chips 'by July'

The main problems were a fluctuating power supply, cigarette smoke and vulnerability to user abuse through having no perma-

immune to

distributed processing, multi-user multi-tasking systems.



More than just a game

live graphics, use of a light pen.
Possible uses seen by Hert-

256 addresses which is then subdivided.

Defence Dept bans NatSemi

The market for military devices is one of the sectors in the semiconductor industry not subject to severe price erosion, and is weathering the current recession.

Micro is immune to office pollution

equipment used is a 6809 processor unit with a 40 Mbyte Winchester disc, five VDUs and a

This is not the first venture into the insurance market for Task Force. The firm previously started an

Rockwell wins CPU contract

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RAPPORT

System changes need to be worked into the schedule on time . . . Mike Ellis discusses the role of the operations analyst

Planner ensures that systems are 'operations friendly'

THE operations analyst is a member of the operations department with no day-to-day production responsibilities, concentrating full-time on the operational implications of new systems.

Every ops manager who wishes to set up an analyst function must go against the operational grain. He must employ staff who do not spend their time worrying about tonight's schedule and solving to-day's problems. He must allow his ops analysts to plan only for the future.

Where do ops analysts come from? What qualities must they have? How can they gain acceptance?

The first essential is that the operations manager should really believe in the need for the function when he sets it up, as operations analysts will need a high level of management support to counter the objections which will automatically arise.

These will mainly come from the systems teams who will see the ops analysts as a hindrance to systems implementation and an interference in their job.

Systems people will tell you that it is their job to take into account the requirements of all the interested parties in the system (including operations). However, with the greater specialisation of project teams and the increasing division between operations and systems, systems people can become remote from the realities of running computer systems on a production basis.

They will be experts on the system they are developing, but will not necessarily understand how operations runs the existing systems which they must interface with.

The ops analyst, on the other hand, will be an expert in the existing production systems and must work closely with the developers to ensure that the new system can be integrated into the existing production schedules with the minimum of disruption.

There is a tendency to accept shortcomings in systems and find ways around their worst excesses.

So how does the ops manager go about establishing this role within operations? Most important to begin with is the setting of clear-cut objectives.

A typical brief might be: "The ops analyst will have no responsibilities for day-to-day production running. He will concentrate on new and amended systems to ensure that they: - fulfil operations design requirements - are handed over to production in a workable state - do not disrupt the running of existing systems."

The ops analyst must be encouraged to make a positive contribution at every stage of project development. He is not a systems auditor, sitting in judgment on the design of others. He is an integral part of this development process, concerned only with the systems operability and not its business functionality.

In today's jargon, he must ensure that systems are "operations friendly."

When the operations manager comes to recruit ops analysts, he need not usually look far. Most installations have one, or two, operational experts with wide-ranging responsibilities covering

such topics as user liaison, system troubleshooting, job setup, file management, JCL writing, input control, production documentation, operator training, etc.

Many of these functions fall naturally into the domain of the ops analyst and can therefore be performed by him. All other "production" activities should be re-allocated to existing staff.

The ops analyst's first priority is to become involved in those systems about to be implemented. He should set up discussions with systems staff to determine when and how the system is to be implemented, what systems support will be provided and what the continuing

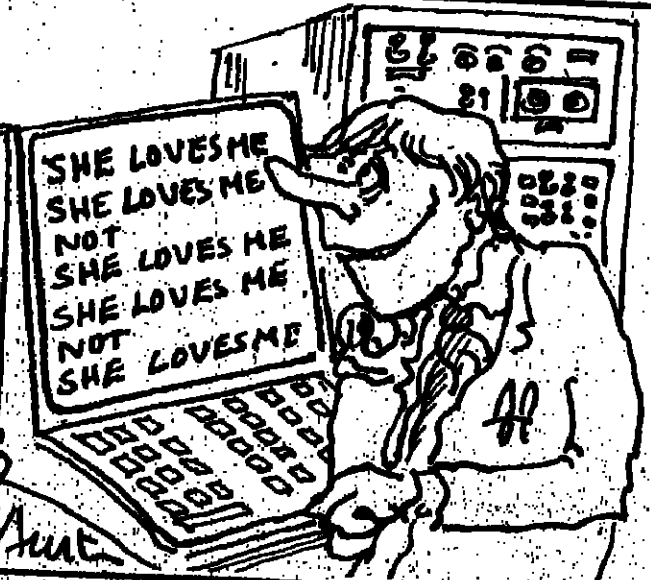
How often have you heard systems people lament "I can never find anyone to talk to in ops"?

agency plans are in the event of failure.

He must also take a positive role in aiding the implementation, by arranging for additional back-up copies of files to be taken, shift cover to be arranged, production schedules and manuals to be amended, and so on.

For systems being tested, he should review the test plans, suggest any extra tests which might be introduced, review the effect on existing production schedules, etc. And it is his job to arrange additional machine time and media, write production JCL, assist in training/documentation.

For systems in the early stages of development, the ops analyst has time to review any system documentation produced and gradually learn about the system. He must review how the system actually affects operations in terms of



He should document such events as wasteful use of machine resources.

input, output, resource requirements, staffing, etc. As he gains in experience, he will be able to refine this role during the stages of development and formulate operations standards for design, testing and implementation. This will provide a measure of operational uniformity in the systems being developed and should assist in improving operational performance.

To aid operability of systems, the analyst should also review the running of existing systems to see whether they can be enhanced operationally. Because production staff are always under pressure to meet business deadlines, there is a tendency to accept shortcomings in systems and find ways around their worst excesses.

The analyst should document such events as wasteful use of machine resources, systems prone to failure, excessive parameter input. These should be brought to the notice of systems management and a positive commitment to making improvements sought.

Systems reaction to the analyst is usually mixed. Some systems analysts welcome having a single point of contact who can represent operations and spare the time to talk about the future. (How often have you heard the systems people lament "I can never find anyone to talk to in ops"? They arrange meetings, but cancel them whenever a production problem crops up?) Others see the analyst as a stumbling block whose role is to object to everything and delay all implementations.

Ultimately, true acceptance of the ops analyst will only come through practical experience of his role in the development process. The proof of the pudding lies in better system implementations - fewer disruptions to existing systems - fewer system failures - better informed operations staff, and the general improvement that come with the proper management of change.

It is not always essential for an ops analyst to come from within operations. Programmers and systems analysts make excellent ops analysts and my experience is that they are always surprised at how much there is to do on the operational side of systems development.

All ops analysts should be given some systems training, since topics like flowcharting, file design, on-line systems design and output report design are critical to his job. Interviewing and influencing skills should also be taught.

Besides the technical training given to ops analysts, emphasis must also be given to understanding the company's business and the way the computer system

be concerned with operability. His place is within the ops department reviewing the operational implications of all new systems within a business area.

It is not unknown for two independent project groups to be simultaneously making amendments to the same system without understanding what the other is doing. It is the ops analyst's job to bring these separate requirements together and understand how the overall operation is affected.

In developing the ops analyst role, what talents should the operations manager look for?

It is vital that the analyst has been in and around computing for three or four years and has gained real practical experience. He or she must understand what the operator's job entails, how jobs are set-up on the machine, how data prep works, what operations utilities are available, what business functions the operation supports, how outputs are reconciled.

He should also have knowledge of such applications as minicomputers, microfiche, writing JCL, run scheduling, operations standards.

His experience will have taught him that systems never quite work the way systems designers plan them. He will know that if there are ways in which the operators can bring the system down, they will find them eventually (there is a law which says that any system which is based on human reliability is an unreliable system).

The ops analyst must inject not so much a note of pessimism as one of realism.

Systems analysts are such supreme optimists that they seldom believe that their systems contain all the normal pitfalls that every other system contains. Many a system analyst has been heard to say: "But you shouldn't have done that - the system didn't expect it." The operational retort should be: "But why did the system allow me to do that? - It should have stopped me doing it, if it couldn't cope with it."

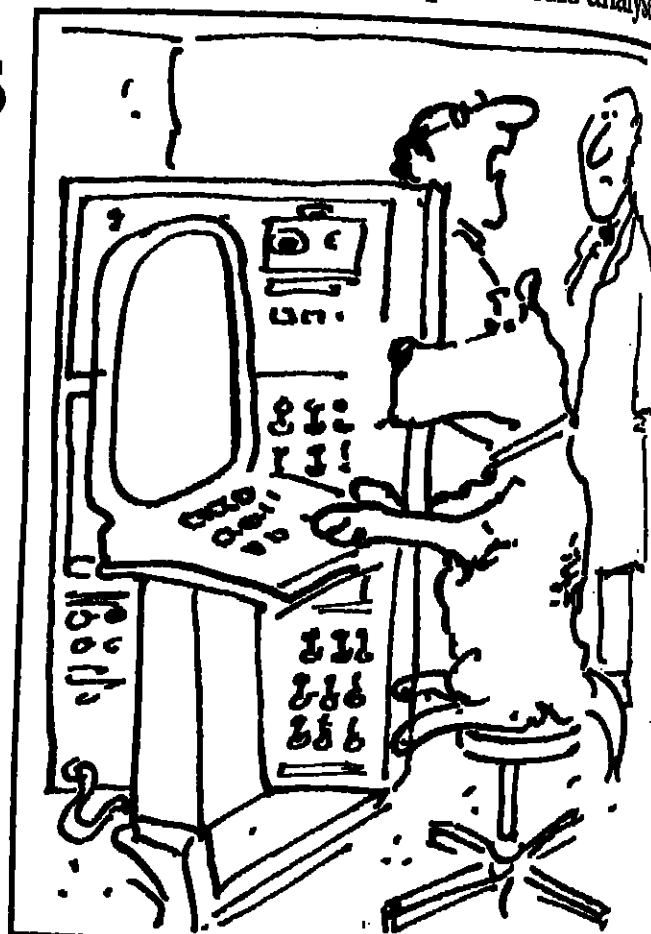
The ops analyst must inject into the project not so much a note of pessimism as one of realism.

The system test will take longer than the systems analyst thinks - there will be problems when you try to feed an output file from the new system into a system which has been running for 10 years, is badly documented and no-one is really sure how it works - some programs will fail for fundamental reasons (can't take multi-reel input files - always expect there to be data on the input file - think all years have 365 days and 52 weeks).

An ops analyst will see these same problems week after week on various systems and will quickly learn that all projects are bedeviled by similar problems. On the other hand, the systems analyst may only work on one project a year and thus will learn these hard operational lessons at a much slower rate. (Remember even the space shuttle had a delay due to systems interface problems!)

Use broad vision. The ops analyst must look at every new system from a broad operational viewpoint, assessing its impact not only on the machine room, but also on data prep, job assembly, output handling, the network, remote sites.

He must ask what the requirements are for extra equipment, additional operations staff, shift patterns, machine resources (CPU time, memory, disk space).



... if there are ways in which the operators can bring the system down, they will find them.

will the users require for provision of output? What online system availability percentage can be guaranteed? This places a requirement on the analyst to keep well in touch with the department, to ensure that he really knows what its needs are. This is very important since he is representing each section in his discussions with the development groups.

Know your systems. The analyst must understand in detail the system which is being designed. He must make time to study any design documents which have been published. He must flowchart the new system, see how it interfaces with existing systems and discuss operational requirements with the designers.

Only when he has this detailed knowledge can he fully relate to the systems analyst doing the job and make positive contributions towards the design of the operational aspects of the system.

He will gradually identify with the project so much that he will virtually become part of the development team. This is very much to be encouraged since far more can be achieved by these personal relationships than by reams of operational standards.

This closeness will assist the recognition of his abilities and the vital role he has to play in project development. All this will lead to

He must always remember that he is representing the interests of the whole ops department.

to a better designed, tested and implemented system.

Challenge everything. He must learn to challenge everything which could impact on the operations department. Every operational assumption made by the systems analyst in his design document must be challenged.

Some will have been made incorrectly, based upon what the systems analyst thinks happens within operations - or should happen. The systems analyst will be an expert on his own system, but not on operations. He may not even know the production schedule of the system he is amending, its dependencies, back-ups and restart points.

His knowledge of the system may be based upon out-of-date or inaccurate program specifications.

Operations themselves may have changed how and when they run system for greater operational efficiency or owing to a change in business requirements.

Be single-minded. The ops analyst must always remember that he is representing the interests of the whole ops department. He must therefore be single-minded in knowing what he wants and how to get it.

He will be under a lot of pressure to convince him that he does not really want some of the things which he has requested in his design requirements ("I will delay the project to provide an automatic computer reconciliation of these financial fields. All ops have to do is collect these reports and add this figure to that figure and . . .").

Operations must be sure that once the system is live, they can run the system efficiently day after day . . .

During the later phases of project development, the pressure on the systems team to achieve committed implementation dates often becomes greater than ensuring the system is fully tested. (Ellis adds that "The time scale for all phases of project development can always be extended - except for systems testing - which can only be shortened.")

The analyst must stand firm on those aspects of testing without which the system is not workable in operational terms. He will need strong support from his operations manager to stem the tide of "get the system in at all costs".

He may lose the battle, but must ensure that the business users have been made aware of the potential problems inherent in the implementation.

All this may sound very obstructive to the systems analyst used to a totally compliant ops department. But operations must be sure that once the system is live, they can run the system efficiently day after day, year after year.

And what benefits will the business ultimately derive from this function? I believe that it will gain by having systems which are implemented in a controlled manner, operate more efficiently, fail less often and recover more quickly. This will enable the operations department more easily to provide the business with the level of service it requires to meet its corporate objectives.

Operators are bored and troubled by office technology, says report

BRITISH companies have their eyes firmly fixed on technology for improving efficiency in the office, despite widespread complaints of eye strain and other ailments among operators of the new machines. Boredom is also a major problem and it is leading to higher than average absenteeism.

These are some of the findings of a national survey carried out by the Alfred Marks Bureau, entitled *The Machine Dream*. But while managers have revealed their complete acceptance of machines in the office, they are often slow to realise that the operators of such devices are as vital as the equipment itself, says the report.

"A machine is often only as good as its operator, and it is imperative that employers take the operator's interests into consideration," says Bernard Marks, chairman of the Alfred Marks Group. "Technology is bringing with it the need for a higher calibre of operator with a clear requirement for almost continuous training."

Eye strain is the most common complaint of VDU operators, and headaches and migraines are suffered most often by data preparation staff.

Some employers have reacted by eliminating glare and installing air conditioning, and some prohibit word processor operators from using a VDU for longer than certain periods without a break.

Alfred Marks sent question-

naires to the executive responsible for machine operators in companies throughout the country, and replies were received from 193 firms employing anything from 25 to more than 5,000 staff. Half of the companies were in the Greater London area, with the remainder spread throughout Britain.

Word processing equipment continues to spread, with 37% of the companies questioned now using them. But old habits die hard, and manual typewriters are still to be found in 62% of companies. Electronic typewriters, with simple WP capabilities, are also on the increase and can be seen in nearly a third of the offices surveyed.

Many companies thought that it was still too early to state with any degree of certainty what effect the new technology was having on their work. Those that had already begun a change thought that productivity had been increased and the quality of the work done was now higher.

Word processors were responsible for taking the boredom out of repetitive typing work, and many executives were anticipating increased efficiency from their secretaries as WP equipment took over much of the time-consuming work.

Few companies said that the installation of new technology had

led to redundancies, and one company had even increased staffing levels.

Operators working with the same piece of equipment all day and every day can suffer from boredom and illness that can be directly attributed to the machinery. Boredom usually manifests itself in higher than average absenteeism - 33% of those sampled said that pool typists and data entry staff were the most susceptible job categories.

Word processor operators are absent from work no more than the national average, which is just as well because the word processor was the machine thought most likely to be closed down as a result of operator absence.

Eye strain is now the No 1 illness, demoting the 1977 leader, headaches and migraines, to the No 2 slot. The increase in the number of VDUs in use has been paralleled by the increase in eye strain. From third position in 1974, it moved to second in 1977, and takes top place today with 40%.

Although headaches and migraines are relegated to No 2, they prove a regular problem for over half of the data prep operators. Whether this is due to mechanical noise or constant chatter is not made clear.

Many companies are determined to make their word processor

Air conditioning	61%
Eliminating glare	42%
Ergonomically designed desks & chairs	37%
Noise absorbers	32%
Modified lighting	26%
Regular eye-testing	18%
Regulated rest periods	16%

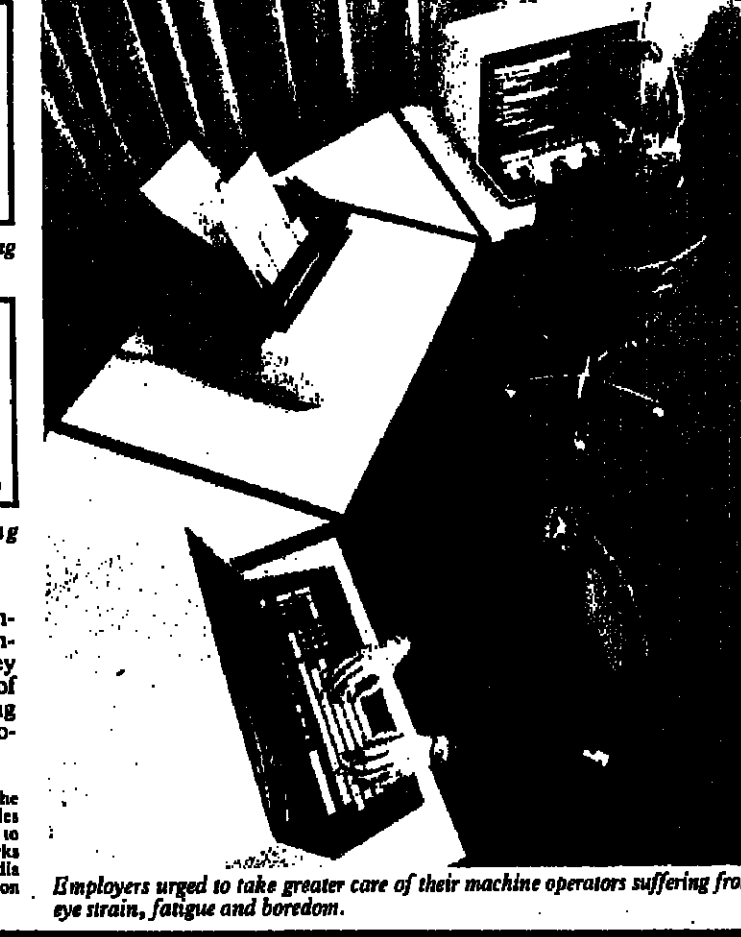
Measures taken by companies using word processors

Eye fatigue	40%
Headaches and migraines	35%
Back ache	30%
Stomach problems	23%
Pains in arms and necks	15%
Stress and worry	13%
Tiredness	8%
Ear ache	3%

Most common ailments among machine operators

long, executives will find themselves having to operate screen-based computers, otherwise they will lose the marketing edge of competitors who are welcoming and adapting to the office of tomorrow, today."

The report concludes: "It is vital that employers take care and pay attention to their dedicated machine operators - they are the guinea pigs for the successful office of the future. Before too



Employers urged to take greater care of their machine operators suffering from eye strain, fatigue and boredom.

April 23-25, 1982
Earls Court,
London

Bringing
computers
to life

THE Computer Fair

Personal computers
Home computing
Small business systems

In all walks of life, personal computers have revolutionised computer power - bringing it within the reach of a far wider and more popular market than ever before.

In 1982 this revolution will explode onto the home and personal computer market. To meet this demand, Practical Computing and Your Computer announce a brand new event - The Computer Fair. The promotion of the exhibition will be heavily geared to attract the growing market of potential and existing users of personal computers, from home computer enthusiasts to businessmen.

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Name _____
Position in Company _____
Company _____
Address _____
Tel. No. _____

Time-wasting due to poor instruction from executives	48%
Difficulty recruiting staff with adequate experience	39%
Difficulty recruiting staff with good skills	36%
Lack of personal contact with executives	21%
Dissatisfaction with dictating methods of executives	15%
Eye strain, headaches or other ailments	12%
Boredom	12%
Preferential treatment given to individual executives by individual typists	6%
Dissatisfaction with the equipment	6%
Discomfort with the working environment	3%

Problems most concerning managers in word processing areas

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Few companies said that the installation of new technology had

operators comfortable. The majority of offices (61%) are air conditioned, and 42% have taken steps to eliminate surface glare, thus reducing the likelihood of eye strain and headaches.

Regulations in force at one firm prevents its WP operators from using a VDU for more than three hours without a break, and in London, firms appear to be concerned about the heat output of the equipment, with 82% installing air conditioning. Throughout the rest of Britain, 58% of WP users have taken steps to eliminate surface glare.

Probably the most important problem caused by working with machines is the routine element of the job. This, in conjunction with the physical problems caused, might suggest a high turnover of staff. However, the present economic climate appears to make all categories of office worker prefer to stay with their current employer, rather than risk a change of job.

Data prep staff appear to be the principal source of worry to personnel departments. Their absenteeism is higher than other job categories, and staff turnover is noticeably higher. In addition, data prep vacancies are the most difficult to fill. Data prep operators had the highest rate of turnover in 42% of the suburban

	High turnover	Recruitment difficulty
Data prep operators	23%	17%
Individual WP operators	15%	24%
Clustered WP operators	5%	23%

Job categories suffering high turnover and recruiting difficulties.

Can you spot the Pascal bugs?

PROGRAMMERS with a fluency in Pascal might care to flex their wits on the following exercise, which contains five errors in a nine-line Pascal program. See if you can spot them before reading the answers at the bottom of the page.

```
program test
const
  nil = '0';
begin
  if nil# '0' then
    writeln('WRONG', +nil, .123)
  else
    writeln('RIGHT')
end.
```

If you fail to pick out all five errors, be not disheartened for you will be in the company of five reputable Pascal compilers. They were fed the code and not one found all the errors.

So if you have a Pascal compiler available, it might be worth while giving the program a run.

The exercise was used as ammunition in an article urging users and suppliers to adopt Pascal compilers conforming to a new standard due to be published by BSI, British Standards Institute, this month. The article is written by Brian Wichmann — a senior principal scientific officer at the Information Technology and Computing Centre of the National Physical Laboratory (NPL).

The big drawback of Pascal hitherto, Wichmann argues, has been the lack of a standard. Pascal programs have therefore been machine dependent.

Wichmann goes on to claim that if the imminent standard is adopted, Pascal programs will be

far more portable than programs written in Fortran or Cobol, which both have had standards for well over ten years.

Why is this so? Wichmann has a ready answer. The standard for Fortran and Cobol is no more than a definition and does not require that invalid programs be rejected by a compiler. At the same time the Pascal standard does not have the many options available to Fortran and Cobol.

Some Fortran and Cobol programs are not portable because they use options specific to particular compilers.

Wichmann also claims that Pascal compilers will have to undergo more rigorous testing before being cleared as standard than Fortran or Cobol compilers do at present. A test suite for this purpose has been

developed by the NPL in collaboration with the University of Tasmania.

This suite, which conforms to standards agreed by ISO, International Standards Organisation, includes a collection of incorrect sample programs such as the exercise on this page which the compilers must reject with suitable diagnostics in order to pass.

There are also quality tests to ensure that the compiler can handle programs of sufficient complexity and that real arithmetic is sufficiently accurate.

There is now a good standard available and it is vital that it is used, Wichmann urges. This can be achieved only by independent testing of compilers, and this possibility is being investigated by the BSI.



LAW... His program should lead to savings.

Brian is a 'model' PhD

A NEW application of computer modelling techniques to the design of internal combustion engines has won a PhD for a project engineer in the Midlands.

The finite element analysis method of analysing structures by dividing them into small imaginary regular pieces was combined with fluid mechanics to provide a complete model of the main bearing and crankshaft.

The degree was awarded to Brian Law, of diesel engine makers Perkins Engines of Peterborough, by Nottingham University.

The work took four years, and the write-up of the thesis a year of what Law describes as "very hard work."

Law's program should lead to savings through the exact calculation of crankshaft strengths. At present such calculations can be

inaccurate and crankshafts are therefore usually made much too strong, resulting in unnecessary expense.

At the same time the program should help eliminate the trial and error aspect of crankshaft assembly by providing precise specifications to begin with.

There is even the possibility that this new program will improve the reliability of engines by enabling tolerances to be more accurately determined. "It can investigate what the engine would be like with a bent crankshaft," Law says.

Whether this would eliminate those occasional batches of dud cars off the assembly line Law is unable to say. It is well known that some new cars start to develop early faults because crankshafts and bearings were set slightly out of alignment.

Coping with the rubbish

A SYSTEM called Ross has brought publicity to the activities of Lamasc, the Local Authorities Management Services and Computer Committee.

Ross, Refuse Operation System Simulation to its friends, applies methods of so-called expert systems to calculate the optimum deployment of men, machines and dustbins for efficient refuse collection. Local authorities pay for the computing involved, £40 for an initial audit and more for the full service, depending on the size of the operation.

There is no intention to ram efficiency down the throat of local authorities, according to Lamasc's director Roy Barnes. "The system gives management a choice — pay or save," he says.

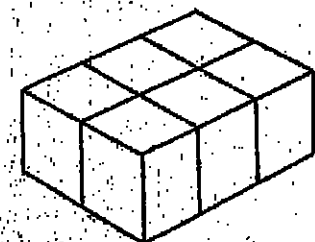
It all depends on which of 19 different methods of refuse collec-



BARNES... "Pay or save."

tion the authority adopts. The computer system breaks down the 19 methods of collection and other factors such as number of vehicles and bins into 300 elements for analysis on an ICL 1900. There is also a version for the Commodore Pet, the micro most favoured by local government.

PUZZLER



GIVEN a piece of string 360cm long, what are the dimensions of the largest rectangular parcel (as regards volume) that can be tied up in the way illustrated here — twice right round the length, and twice right round the width? Ignore whatever extra string might be required to form a knot.

See page 46 for solution. (This diagram is just to show the general shape involved, and is not drawn to scale.)

Pascal code errors

Errors in code of program (see story top of page):

1. Program must contain the word output as a parameter.
2. Nil cannot be used as an identifier because it is a reserved word.
3. # is written as <> (not equals).
4. Nil cannot follow a sign.
5. A decimal point must be preceded by a digit.

So the corrected program is:

```
program test (output);
const
  nil = '0';
begin
  if nil <> '0' then
    writeln('WRONG', nil, 0.123)
  else
    writeln('RIGHT')
end.
```

Ouch!

We remember what it was like being an OEM.

We've come a long way in the past 10 years.

Today we're Britain's largest manufacturer of interactive business computers with an unbeatable range of hardware.

But it wasn't so long ago that we were starting out — as an OEM!

So it isn't surprising that we still remember the pressures of the OEM side of the business and have a lot of empathy with the problems.

We realise the importance of

first class kit — and it's no secret that the Systime range has proven itself to be without equal.

To operate efficiently OEMs need a firm commitment on delivery. Systime can deliver within 30 days. If we give you a delivery date we'll stick to it.

Next we don't believe in forcing our customers into a

corner with contracts that could end up strangling them. We are flexible — so are our contracts.

Systime has an unrivalled reputation for service and support — we guarantee to have someone on site anywhere in the U.K. within 4 hours.

That's the kind of service your customers demand.

And finally you'll find our prices more than competitive. Why not phone or return the coupon and find out for yourself.



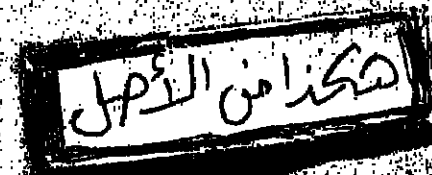
We make it our business to help

To: George Thomson,
Systime Limited,
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Name _____
Company _____

Address _____

Please send me full details of your product range and of your other services to OEMs.



CW11/2

Looking for low-cost resilience? You don't need a list. A word will do. MOMENTUM!

If you're interested in looking at computers for on-line transaction processing, your list of computer manufacturers can be just about as long or short as you like.

But if you want resilience — the built-in ability of your system to recuperate quickly after a failure — your list will be very short indeed.

And if you want this "availability insurance" without having to take a giant leap to a fully-duplicated system, forget about the list altogether. Just remember a word...

MOMENTUM!

From CTL.

No other computer maker offers you a choice of resilience features, starting with systems costing only

£40K. No other computer maker offers you a standard upgrade path — letting you add resilience in steps as you need it. And no other computer maker offers resilience as a retrofittable add-on to its systems already in the field.

In other words, CTL computers are the only ones with MOMENTUM. Or anything that resembles it. Send us the coupon and we'll give you the word.

Attention: Roger Fulton.
☐ Please send a copy of your new MOMENTUM brochure.
☐ Please contact me for an appointment.

Name _____ Job Title _____
Company _____
Address _____
Telephone _____ Ext. _____

Computer Technology Ltd., Eaton Road, Hemel Hempstead, Herts. HP2 7LB.
Telephone: (0442) 3272. Telex: 825052

The Computers with MOMENTUM



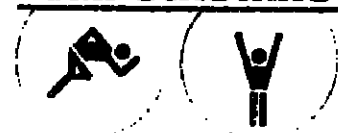
CTL Computer Technology Limited

an ITL Information Technology Company

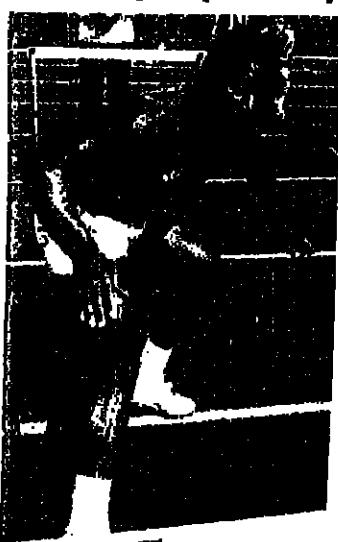
Andrew Thomas kicks off the DP industry's sports season . . Here is your chance to put Sebastian Coe in the shade



Calling all DP athletes — Computastars is back!



Sponsored by Computer Weekly



Paul White sprints for the London Borough of Lambeth at the 1981 Barnet heat



Women at Gloucester County Council tug to victory in the 1981 Computug (UK finals)

TIME to get your tracksuit out of mothballs and blow the dust off your plimsolls — it's Computastars season again. This year's chance for the men and women from computer users and suppliers across the country to compete for Computer Weekly's national sports awards.

And, after that, go on to battle with contingents from Holland and Belgium for European medals. Computastars is a team and individual competition which calls for athletics skills on track and field, in general sports and in the gymnasium. There are to be four regional heats building up to national finals.

All are sponsored this year, as usual, by Computer Weekly, which will be awarding gold, silver and bronze medals along with individual and team trophies.

Entries are open to men's and women's teams of between three and five, and any number of teams can enter from a single user or supplier company.

Each team puts up members who compete in the eight events which make up the regional heats. One of the team members has to do all the events, and therefore competes against the star from the

other teams in an individual competition. Then, if the team makes it through to the finals, the star goes for an individual national medal.

Events can range from long jump and discus through squat thrusts and short sprints to the dreaded steeplechase. For now, however, organisers Gordon and Maureen Cairns are keeping the

Dates, venues

Crawley, Saturday May 15
Enfield, Sunday May 23
Barnsley, Sunday June 13
Birmingham, Saturday June 26
UK Finals:
Birmingham, Saturday July 29

exact details to themselves, in the best tradition of Computastars.

Among the strongest teams last year were the men of BL Systems, who won the national team award. Kalamazoo's Jeff Harrison carried off the individual gold.

In the women's events, Legal & General Assurance won the team prize for the second year running, with Number One Bridget Cuthill winning the women's individual gold for the second year.

This year's specials

THIS year sees an extension to the main competition with special categories for small units and veterans, as well as a repeat of the popular 1981 tug-of-war competition.

The small units section is to give those companies or installations which have no more than 25 eligible people working at one location a chance to win their own award while still competing in the main competition to win their own award while still competing in the main competition. The term "one location" here means within a 25-mile radius of the location.

Likewise, the veterans section is for teams which comprise mem-

bers who are all over 35. Both these special sections have the standard £35 entry fee.

These classes are being run this year for men only, though if they attract enough interest among women they will be extended there as well.

Run alongside Computastars is the tug-of-war competition, Computug. An opportunity to prove superstrength, it is open to teams of five, men or women, though not those already competing in Computastars.

The entry cost is £10 per team. The same rules and eligibility regulations as for the main competition apply.

If you have a query on Computastars, please don't contact us at Computer Weekly — get in touch with the organiser at 117b High Street, Croydon, CR0 1QG. Tel: 01-688-6690.

COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastars/Computug 1982 and would like to enter

Main competition Men's teams Women's teams
Small units Men's teams Women's teams
Veterans Men's teams Women's teams
Computug Men's teams Women's teams

Name of team(s)

Company

Address

Name of contact

Telephone

Signature of DP manager or equivalent authority

Position held

We would like to compete in the following region:

NORTH (BARNSELEY)
LONDON (ENFIELD)

MIDLANDS (BIRMINGHAM)
SOUTH (CRAWLEY)

please circle appropriate region

Enclosed is £..... to cover the entry fees for the team(s). Cheques should be made payable to Computastars Ltd.
In all matters relating to the rules or conditions of entry, the decision of the organisers is final.

Please send entry form and fees to Computastars, 117b High Street, Croydon CR0 1QG. Telephone 01-688 6690



Last year's UK finals. Dave Cross of National Provident makes a splash during the steeplechase. Behind him is Rowntree Mackintosh's Maria Rigg

Competition rules

THE rules for the 1982 Computastars are:

● Teams will consist of not less than three and not more than five people.

● Each team other than a veterans' team is required to nominate a Number One competitor who will compete for the individual title in addition to being a member of the team.

● Teams will compete in the regional preliminary heats.

● The winning teams from each region will be invited to participate in the national final. Additionally, in the men's competition, the highest scoring veteran team and the highest scoring small unit team will be invited to compete in the national finals.

● The top three men's and women's teams at the UK finals will be invited to participate in the European finals, scheduled for early September in Belgium.

● In each event in each round, three members of the team will compete — the nominated Number One, and two other team members chosen by the team captain.

● Team captains must be a member of the team and the organisers will only recognise the team captain's selection for events.

● Should the Number One be unable to compete after being nominated, then the team captain will nominate a substitute from the remaining team members. If a substitute for the original Number One is used after the competition has started, then neither the original Number One nor the substitute will be eligible for the individual title.

Eligibility for entry

THOSE eligible to take part in Computastars fall into the following categories:

● Only personnel who are fully posted to data processing activities.

● Only personnel who were employed by their present company prior to February 1, 1982 can represent that company.

● Should a competitor leave the employ of the company he or she represents, that person will no longer be eligible to represent that company after the date of leaving.

● Companies may enter as many teams as they wish, subject to eligibility. A competitor may represent only one team and, having been nominated for that team, may not represent any other team in the competition during the current year.

● Teams wishing to enter the veterans' section (men only) must wholly comprise members who are 35 years old or over on February 1, 1982. Teams in this section are not eligible for nomination as Number One of the individual title, and event selection will be any three members from the team.

● Teams wishing to enter the small units section of the men's

competition must meet the following conditions.

1. The unit or company must employ less than 25 eligible people (men or women and including contract staff), within a 25 mile radius of the location of the team entering.

2. The team will compete in the main competition and must also nominate a Number One who will compete for the individual title.

● Teams not entering the small units competition may consist of members of the company drawn from any location.

● Contract staff may be used subject to the qualifying conditions.

● Once a team entry has been accepted there will be no refund of the entry fee.

● All costs incurred are the responsibility of the teams.

● All competitors participate at their own risk and the organisers do not accept any responsibility for loss of personal or company property or injury, however caused.

● All entries must be signed by the data processing manager or equivalent authority.

"At British Telecom, our electronic mail service will demand round-the-clock reliability." Tandem^(TM) delivers it.

British Telecom installed a Tandem NonStop^(TM) computer for the advanced trials of a potential electronic mail service.

Linked to the Public Switched Data Network, the electronic mail service will store messages in 'pigeon holes' until they are recovered at the recipient's computer terminal.

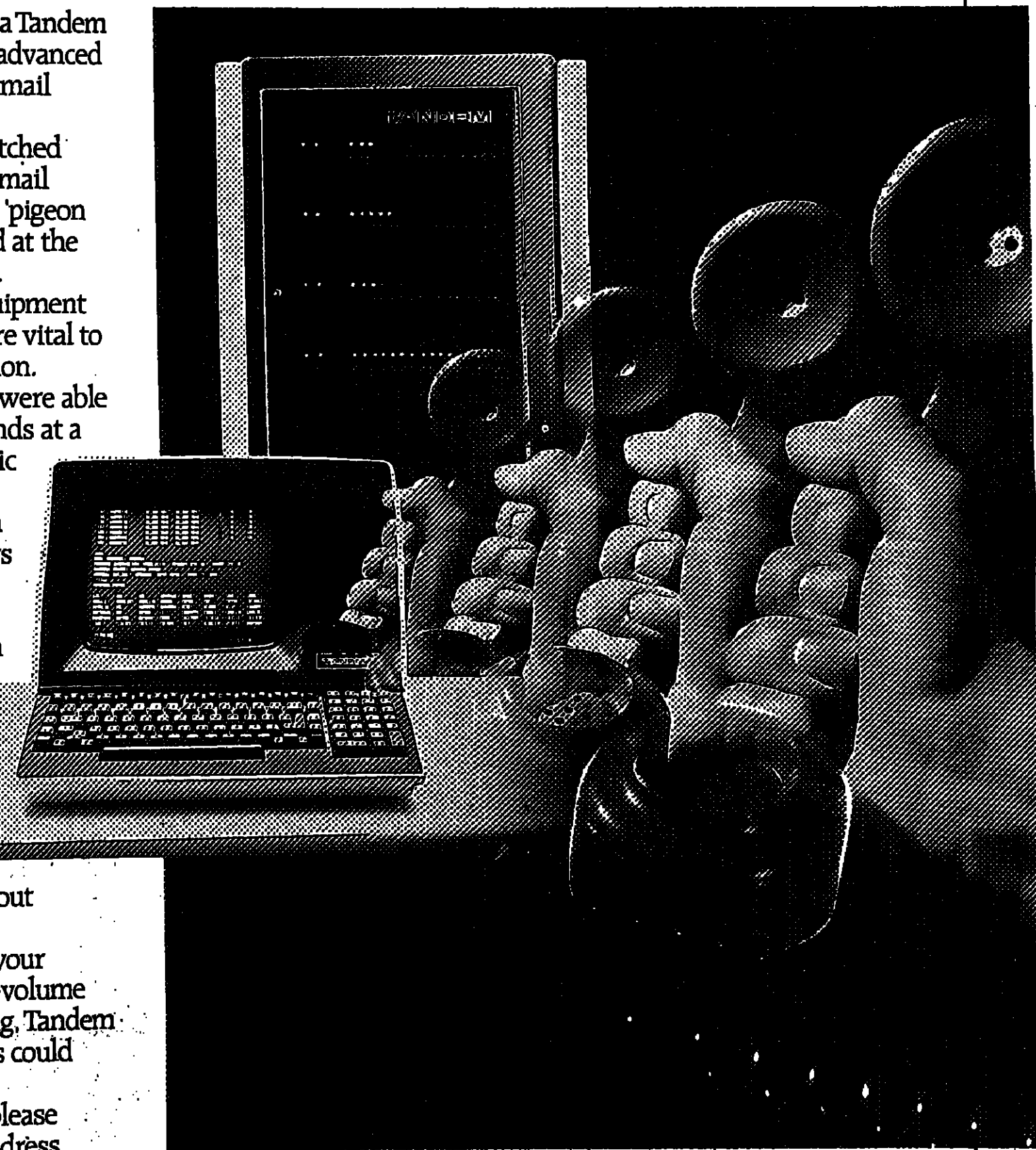
The highest levels of equipment reliability and data security are vital to the success of such an operation. Tandem NonStop computers were able to meet these exacting demands at a price that makes the electronic mail concept feasible.

Tandem's unique system of multiple processors renders the possibility of system breakdown or data loss virtually impossible — even in the event of a component failure.

Unlike other systems, normal maintenance and repair can be carried out while the computer is on line, without bringing the system down.

If, like British Telecom, your company is involved in high-volume on-line transaction processing, Tandem NonStop's unique capabilities could prove irresistible.

For more information, please contact us at our Northolt address.



TANDEM

Tandem Computers Ltd. Peel House, 32-34 Church Road, Northolt, UB5 5AB Tel: 01-841-7381 Telex: 933333
Also at Bilbao House, 36/38 New Broad Street, London EC2 and 54 Hagley Road, Edgbaston, Birmingham
Tandem and NonStop are trademarks of Tandem Computers Inc.

Essential vocabulary is compressed into a small space

Dictionary of Data Processing (Second Edition). Jeff Maynard. Butterworth. £12.00.

IN the six years that have elapsed since the first edition of this book was published, DP has changed dramatically not in terms of volume but in structure and area. The basic processes remain the same, but equipment has become more efficient and generally smaller with the development of the silicon chip, particularly the Z80. This has meant the spread of DP into new areas; at the simplest level into domestic appliances and traffic lights, and at the more complicated level into industry. More people are now forced to become involved in talking about computers, and are entering a new and strange world fraught with jargon. An increase in the use of word processors and other electronic office equipment has also intro-

duced a new range of technical vocabulary, with which every office manager and secretary is going to have to become familiar sooner or later.

The author tries to cover words in every aspect of DP in only 200 pages, which means that explanations are necessarily short and sometimes may verge on the inadequate for readers with no experience of computers.

For example, a modem is described as "a device used to modulate and demodulate signals to be transmitted over communications facilities," with no clue as to its physical nature.

In addition to the lexicographical section, there are some very useful appendices, listing common acronyms and abbreviations - as essential in the computer industry as in the civil service.

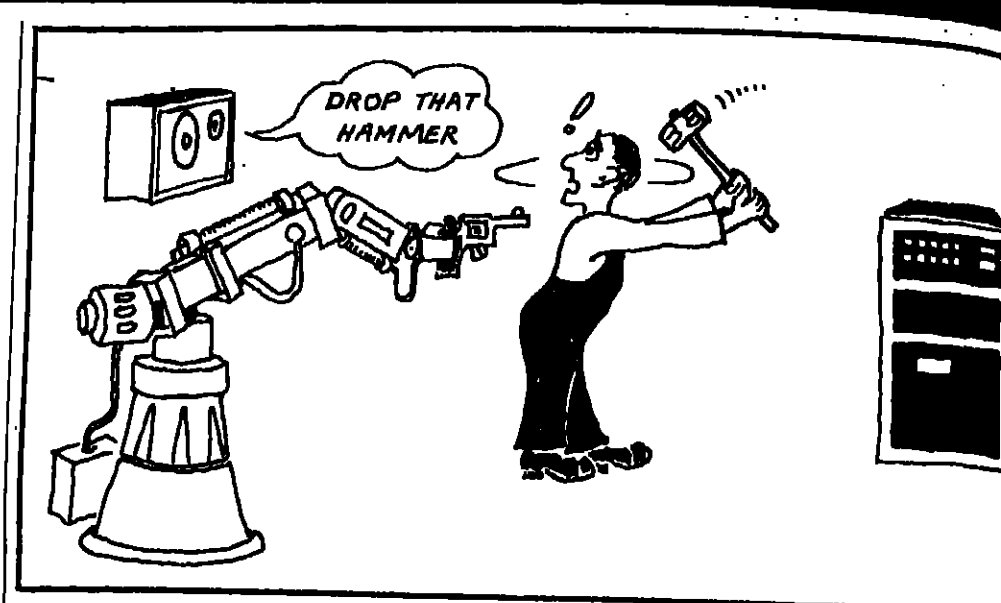
It is sadly true though, that a dictionary is out of date the day

after it is written, and a few recent arrivals such as Unix and CPM operating systems and APL, are absent. VMB and VMK are also missing but old faithfuls DOS and George are in.

Tables of hexadecimal to decimal conversion make this a book to keep in the desk drawer for handy reference, as do EBCDIC tables, useful when interpreting punch cards without the aid of a card reader, and similar tables for paper tape.

Considering its size and price, this book is excellent value for money, and contains a wealth of information that we may all need to use every day in the future. What does EBCDIC stand for? "Extended Binary Coded Decimal Interchange Code," it says in the dictionary. Point proven?

Maggie McLening



This introduction is reader friendly

Illustrating Computers (without much jargon). Colin Day and Donald Alcock. Pan Books. £1.95.

IF books can be described as "reader friendly" in the same way that interactive computer systems are "user friendly", then this one fits the bill exactly.

Every aspect of computing mentioned is illustrated with a dia-

gram or cartoon, and the book is written in a chatty style.

The authors are to be congratulated on simplifying the explanation of what is inside a computer and how it works into a mere two chapters, much of which is devoted to the mysteries of binary. Silicon chips are also described in great detail, previewing a chapter dedicated to microcomputers and their uses.

The age-old question of whether computers put vast numbers of people out of work is raised, comparing this to the Luddite tale, and the authors attempt to move it in the form of a cartoon (above).

As an aid to easy enlightenment for those who know nothing about DP at all, this book is excellent.

M.M.

Aid to the intimidated first time user

The Director's Guide to Computing 1981. An Institute of Directors publication. £1.95.

I AM generally suspicious of guidebooks full of advertisements because all too often the advertising tends to colour the editorial content, so it was encouraging to read this apparently unbiased account of the fundamental approach the layman might adopt to understanding computers.

Do not be put off by this modest-looking publication, for between its flimsy covers is to be found a wealth of good sound advice particularly useful for the first time user - that is both concise and free from computer jargon.

It is all too easy to fall into the trap of being intimidated by the prospect of getting a computer and consequently seeking the often expensive services of an "independent" consultant, but, as this guide does well to remind us, there

is frequently more to these so-called experts than meets the eye. As a basic introduction to this important management tool one could benefit considerably from this guide.

An interesting chapter by Day Ebyons (one of the dozen authors on the alternatives to in-house computing, particularly business, traces their development through the future.

Perhaps one of the most poignant comments in this guide comes from P. J. Thomas: "The computer business is based on complex and fast changing technology (with which it sometimes seems obsessed), talks a language of its own, and is ill-tailored at communicating in business terms."

David Gordon, Deputy chairman of Greater Publications Ltd, London, which has just installed its first computer system.

Basic telecoms guide in official handbook

Telecoms Users' Handbook. M. B. Corby, E. J. Donohue and M. P. R. Hamer. Telecommunications Press, London. 370pp. £20.

WE have yet to see any material fulfilment of the opportunities promised by the passing of the British Telecommunications Act, but there is a lot of interest professed in the area and almost as much ignorance displayed.

This handbook provides a plain language guide to the basics which could be useful to the manager finding his way around in telecommunications for the first time.

The book is firmly aimed at users, providing a range of information from lists of equipment and service suppliers to

breakdowns of various aspects of British Telecom's finances.

Reference material such as the 18 pages of names and addresses of regional Post Office Advisory Committee officials alternates with passages on dealing with consumer problems and selecting consultants and training courses.

But the bulk of the book consists of introductory explanations, on telex message switches, on PABXs, on videodata and teletext. The most topical explanation is the summary of the government's liberalisation policy, the provisions of the British Telecommunications Act and the roles of the Office of Fair Trading and the Monopolies and Mergers Commission.

Donald Kennell

Helping librarians to choose

Minds, Micros and Terminals for Libraries and Information Services. Edited by Alan Gilchrist. Heyden. 121pp. £7.50.

DESPITE its rather dull and daunting appearance, this is an invaluable book for any librarian or information scientist contemplating automation.

The eleven papers are written by specialists with practical experience of their subjects, and they give helpful advice and informa-

tion. However, as the conference that the papers are taken from was given in 1980, some of the information may be out of date.

There is a useful index and some of the papers give a list of references. A glossary of technical terms would have been welcome, if only to explain what "electronic mice" are.

Sue Kenley, Assistant Librarian, Swansea Central Library, Hens.

Cassani appointed to IBM boards

KASPAR CASSANI, IBM vice-president, has been elected to the boards of IBM UK Holdings and IBM UK, following the resignation of IBM's senior vice-president Jacques Maisonrouge from those boards.

The changes follow Maisonrouge's appointment to the company's corporate office and corporate management committee in December. Cassani succeeded him as chairman and chief executive officer of the IBM World Trade/Middle East/Africa Corporation and as president IBM Europe.

Cassani joined IBM Switzerland

in 1951, and after holding sales and staff positions there went to IBM Europe as director of operations for South-west Europe. He became director of marketing in 1967.

After a year as director of product line at IBM World Trade headquarters in the US, he became general manager, North-west Europe in 1971, based in Paris.

In 1976 he became administrateur-directeur-general, IBM Europe, and in 1980 was elected president of IBM World Trade Europe/Middle East/Africa Corporation.

Richard Hamper has joined Wordplex as national systems manager, responsible for software support. He was previously with Raytheon International Data Systems, where he was marketing services manager for two years, based in Sydney, Australia.

Jack Iddon has been appointed Midlands sales executive at Versatec. He previously spent four years with Texas Instruments, where he was Northern region sales manager in the digital systems division.

Alan Griffiths has been appointed product manager, communications products, at Computer Technology. He joined the company after two years as sales executive with Datapoint.

Mario Guzzetti, former international sales manager with Perkin-Elmer Data Systems, has become sales and marketing manager for Europe, the Middle East and Africa at Anadex. Immediately before joining Anadex he managed his own company, Wordata, which acted as a distributor for AM Jaquard Systems.

Robert Wright has been appointed sales manager for the North-east of England at Atlantic Computer Leasing. He was previously country sales manager with Leasco.

Mike Bardell-Smith has been appointed systems OEM manager at Data Recognition. He was formerly the company's software manager.

DIARY

FEBRUARY 15

Computer networking. BCS Cheltenham and Gloucester branch, Queens Hotel, Cheltenham. 7.30.

Medical systems. BCS Glasgow branch. The Music Room, Staff Club, University of Strathclyde, John Street, Glasgow. 6.30.

FEBRUARY 16

WA Packages to micros. BCS Word Processing and Office Auto-

mation Group. Prudential Assurance, 142 Holborn Bars, London EC1. 5.30.

Space invaders and software protection. BCS North Staffordshire branch. Computer Centre, North Staffs Polytechnic, Stafford. 8.00.

FEBRUARY 17

Trends in engineering applications with 16-bit microprocessors, half-day symposium. BCS Birmingham branch. Sumpner Building, University of Aston. 2.30.

How do we classify business systems? BCS BIS Group. 6.00. Contact Colin Campbell on 01-580 5599 for details.

AIM visit. Computing for solicitors. BCS Humber branch. AIM, Derrington Street, Humber. 7.30.

Process control at Ford. BCS Process Control Group. Ford

CONFERENCES

THE fourth annual symposium on the developments in electronic mail and messaging in Europe will be held on March 22-23 at the Cumberland Hotel, London. Organised by the Yankee Group, it aims to bring together speakers from Europe and North America to present an analysis of the range of services, systems, products and suppliers in electronic mail. Topics include text messaging systems, electronic voice messaging

systems, European market dynamics and telex. Fee is £295 + VAT. Further information from Al Dunn, The Yankee Group, Regal House, Lower Road, Chorleywood, Herts. Tel: (44) 9278 4119.

A CONFERENCE and exhibition devoted to local networks and distributed office systems is being organised by Online and will be held at the London Tara Hotel from April 14-16. The conference



Determination paid off for David Mawson, recently awarded the National Computing Centre Certificate in basic systems analysis. Mawson, who is blind, was given all course material four months before he attended the course. Exercises and tests were transcribed on to audio cassettes, and he answered the questions and dictated his project using his own dictaphone. Mawson has worked for the computer branch of the North-eastern regional headquarters of the Central Electricity Board at Harrogate for 11 years. The course was run by John Bailey of the NCC.

Motor Co. 10.30. Registration fee for the day is £15. Advanced registration required. Contact Peter Andow, Dept. of Chemical Engineering, Loughborough University, Loughborough, Leicestershire, LE11 3TU.

Gavin Dyer has joined Systems Production as sales manager. He was previously sales manager at Anadex.

Nick Leonard has been appointed sales manager for the financial planning division of Package Programs Ltd, PPL. He was previously financial director of several P&O subsidiaries.

Top jobs at Systems Industries

TWO vice-presidents at Systems Industries have taken a step up the company ladder to become senior vice-presidents in their own fields.

Kent Winton becomes senior vice-president, marketing. He has been with the company since 1970, and vice-president, marketing since 1972. He will take responsibility for all Systems Industries' marketing activities worldwide.

Richard Milligan, who joined SI in 1973, has been promoted to senior vice-president, customer service. He was appointed vice-president, customer service in 1978. In his new role, he will be responsible for all manufacturing and domestic customer service operations.



Alison Newell, managing director of F-International, has been co-opted to the Council of the Computing Services Association. She will also chair the internal services committee of the CSA.

Head of R&D for Sinclair

SINCLAIR research's new R&D division, based in Southampton, will be headed by Michael Pye, who has been appointed head of communications development.

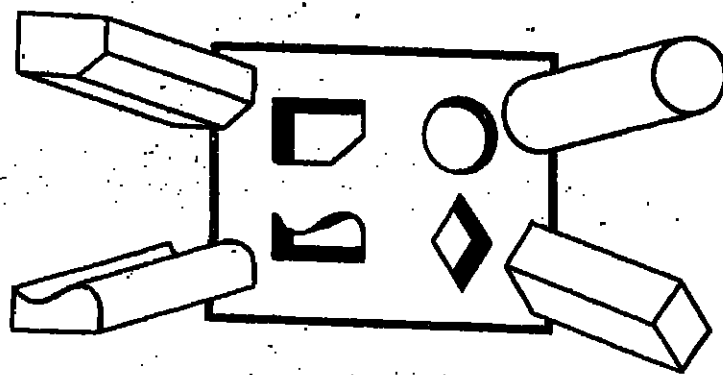
He joins the company from Honeywell Control Systems (UK), where he was director of engineering. Previous positions include director of electronics development at Gillette and technical and later managing director at Sinclair Radionics.

New director

FORMER BL International chairman Brett Thompson has joined the board of the AID Group as a non-executive director. His former posts have included deputy managing director of the electrical components group Bowthorpe Holdings and vice-president of the US conglomerate AMP.

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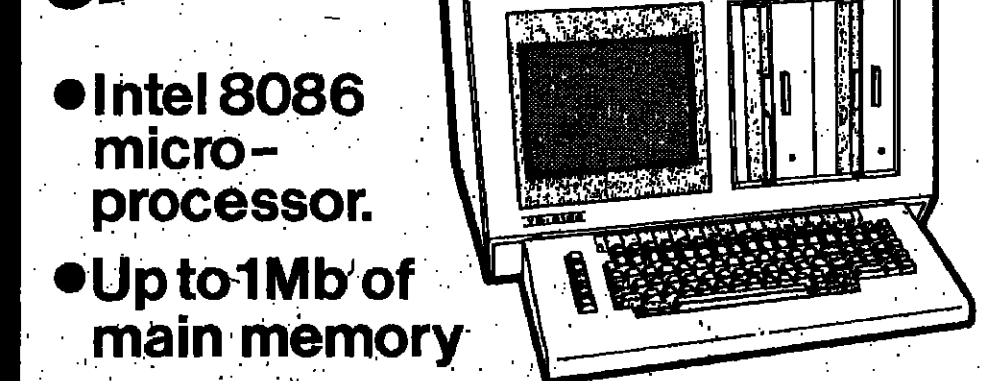
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The Paperax 2000 paper shredder.

Shredder is portable

THE 2000 paper shredder is claimed by its manufacturer, Paperax, to be the first truly portable machine of its kind on the UK market. The machine fits neatly on to any desktop or working surface, allowing it to be used in any area within the office environment. It weighs only 12kg, can be moved by any member of staff, and its portability enables it to be transported on the back seat of a car for meetings away from the office.

The shredder will cope with nearly all sizes of paper, up to and including computer printout of 14 1/2 in (370mm) and it will accept staples and paper clips on reports without difficulty, says Paperax. Paperax Limited (CW), Unit 5, Southdown Industrial Estate, Harpenden, Herts. Tel: (05827) 66271.

Drum plotter for CAD/CAM users

ITS new wide drum plotter produces large scale, multi-colour drawings economically for computer-aided design and manufacturing users, says Calcomp.

The Model 1060 is designed to combine the space saving features of a drum plotter with the performance of large flatbeds. It has a 54 in wide drum which provides a maximum drawing size of 4 ft 6 in x 120 ft (the roll length). It is available with an optional 36 in wide drum for maximum user flexibility.

The high performance 1060 has a drawing speed of 30 in per second, uses linear pen actuation for the fastest pen up/down times

available, and has an acceleration rate of 2G.

With four program selectable pens, the 1060 accepts four media types - translucent, rag, vellum and polyester film. Through operator controlled speed and acceleration, high plot quality is obtained with four different pen types.

Priced at about £26,000 (in single quantity), the plotter can operate in online, offline, and remote/time sharing environments.

Calcomp Ltd (CW), Cory House, The Ring, Bracknell, Berks RG12 1ER. Tel: Bracknell (0344) 50211.

IDS-80 raster station

THE GST-8250 raster graphic workstation from Gerber is now available on the company's IDS-80 CAD/CAM system.

Gerber claims that the workstation, which incorporates an independent HP1000B computer with 256 Kbytes of high performance memory, offers significant improvements in multi-workstation performance over the more conventional systems. These distributed processing techniques are also claimed to permit fast screen update rates.

Gerber Systems Technology Inc (CW), Clive House, 12-18 Queens Road, Weybridge, Surrey KT13 9XD. Tel: (0932) 55951.



The Saiton 800 colour VDU from Sait Electronics UK.

Colour display system

THE Saiton 800 from Sait Electronics is a colour display system aimed at a wide range of process control applications where comprehensive dynamic monitoring is required by the operator.

Designed to be used with Sait's Midi, Maxi and Jumbo programmable logic control systems, the system gives both general and detailed information, shows trends and analyses, statistical operating data, and so forth.

Applications include any industries where complex process control is undertaken, involving fluids handling operations, including the dairy industry, brewing and distilling, chemical engineering and similar handling operations.

The display is built up both statically and dynamically online, using the unit's microcomputer

controlled keyboard. Cursor positioning is controlled from the keyboard, as is the choice of function for characters, symbols, and choice of background and foreground colours to be used. It is designed for ease of use, the cursor can also be moved by using a light pen.

Apart from the VDU and main keyboard, the system also has the facility for a double flexible disc unit for picture storage, and a subsidiary operator's keyboard is changing process control parameters while the system is running. Two key locks are built into the system to give a three-level priority access system.

Sait Electronics (UK) Ltd, Unit B, 13 Holders Road, Aldershot, Hants, GU11 4BB. Tel: 0252 331651/2.

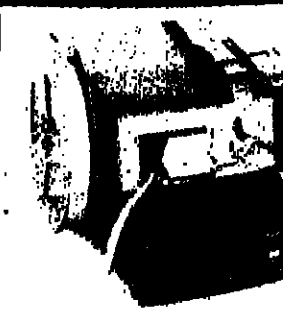
Telephone typesetting

THE Typeshare package aims to provide real time typesetting over the telephone.

It was developed and is marketed by the company of the same name, which says it is the only system that will put the subscriber in full control of the end result and that can automatically provide a facsimile of the setting within six minutes.

The package includes an intelligent multi-functional terminal, a compact keyboard, and an "instant" computer-linked facsimile feature, says Typeshare.

Typeshare Ltd (CW), 42 Gloucester Crescent, London NW1 7DL. Tel: 01-552 8384.



THE CT 5000 is a free-standing combined punch and reader unit with electronic interfaces and controls allowing 5, 6 or 8 unit tapes to be read at switchable baud rates up to 2,400 baud, while 5, 6 or 8 unit tapes can be punched at switchable baud rates up to 300 baud. They allow simultaneous independent operation of punch and reader.

RGR Electronics Ltd (CW), Hillbrow Road, Liss, Hants GU33 7LE. Tel: Liss (075 002) 4125.

Remote devices seem local

DATATRAX has started delivery of its Procon II protocol converter.

Conceived originally for use with hand-held terminals, it provides for auto answer and disconnection of modems, and error control, making remote terminals appear as local devices to host machines.

Procon II is a low-cost asynchronous device which can interface directly to any computer capable of supporting teletype protocol, says Datatrax.

The unit includes internal fuse disconnection devices for the protection of modems, and its firmware is designed to ensure line disconnection and prevent accidental or deliberate domination

of data input facilities. Facilities for Telenet one-way and two-way data communications are provided as input protocols. Teletype and 2741 are provided as output.

The unit is also available as a self-powered OEM "black box" comprising two UARTs, 180 CPU, four Kbytes of ROM, four Kbytes of CMOS RAM with battery back-up.

Procon II is part of a modular system including tape and disc spooling stores, call logging printers and synchronous adaptors. Input protocols for competitive terminals will shortly be announced.

Datatrax Ltd (CW), Computer Centre, Gayton, Northampton NN7 3BU. Tel: (0604) 858011.

PRODUCTS - 2

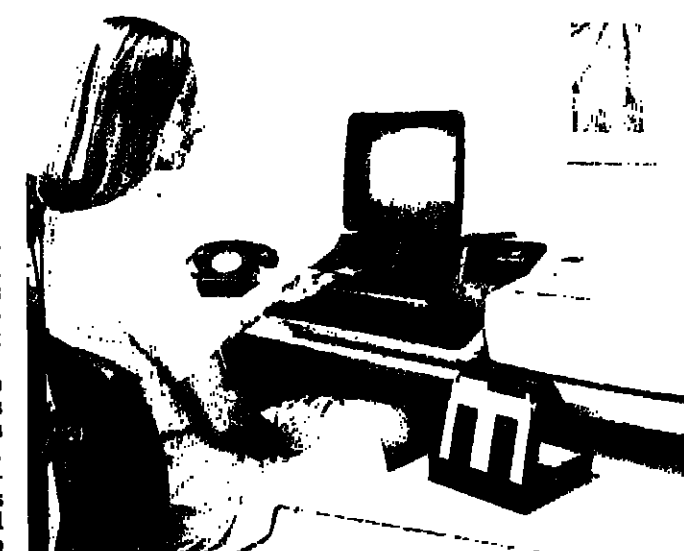
Boss for small business

WITH hardware and software designed for a full range of small business applications, the Boss microcomputer is the latest addition to Olympia's office equipment range.

The range will also appeal to experienced, larger companies needing data processing facilities at the user point, says Olympia. There is the facility to communicate with mainframe computers and other computer systems, and the systems have been designed to be simple to understand and operate.

The microcomputers have 64K of RAM and choice of external storage capacity, and all use the Z80A processor chip. Three of the systems use twin, high density mini-floppy disc drives with a storage capacity ranging from 140 to 600 Kbytes per disc. The larger capacity 5 Mbyte system uses one mini-Winchester hard disc drive and one 600K mini-floppy disc.

Three printers are already available - 80 and 132 column dot matrix printers plus Olympia's Whisperdisc daisywheel for word



The Olympia Boss microcomputer is designed to be easy to operate.

processing. A full qwerty and Ascii upper and lower case keyboard, with a numeric pad is provided. There are 10 programmable function keys plus five cursor keys.

The display screen is a 12 in CRT monitor, green on black which can be inverted by program. It provides the extra large capacity of 28 lines of 80 characters (2,240 characters total) which is virtually the size of a complete A4 page. High resolution graphics are also provided. The screen is flicker free and has a brightness control.

Software packages available include sales ledger and purchase ledger, stock control, invoicing and payroll and there are also word processing packages to improve typists' productivity.

Prices start at less than £3,000 for a 280 Kbyte computer with printer.

Olympia Business Machines & Co Ltd (CW), Market Department - Computer Systems, Olympia House, 199-205 Old Marylebone Road, London NW1 5QS. Telephone: 01-262 6788.

Shugart doubles storage capacity

TWO half-height, eight-inch floppy disc drives that are said to allow users to double existing storage capacity by placing two units in the space of one standard model, have been introduced by Shugart Associates.

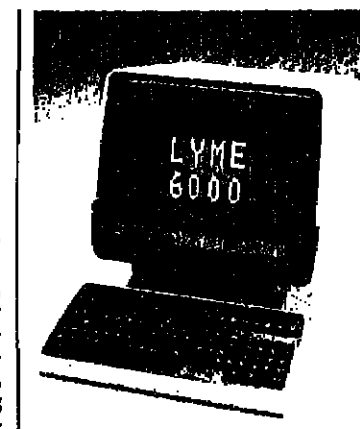
The SA810 (single-sided) and SA860 (double-sided) drives, exactly half the height of standard eight-inch floppies, are fully compatible with Shugart's industry-standard SA801/851 series.

The new drives offer unformatted storage capacity of up to 1.6 Mbytes in the double-density SA860, track-to-track access time of three milliseconds - twice as

fast as standard eight-inch floppies - and average access time of 89 milliseconds.

Two new electrical functions, true ready and buffered seek, are offered on the SA810/860. Together they are claimed to eliminate the need for motor start, seek, and seek complete timers, allowing the system to operate at peak efficiency.

Priced at \$385 and \$450 respectively in quantities of 500 units, the SA810 and SA860 will be available in the first half of 1982. Shugart Associates (CW), 475 Oakmead Parkway, Sunnyvale CA 94086. Tel: (408) 7330100.



The Lyme 6000 from Gresham Lion.

Eight-colour display

LATEST visual display terminal from Gresham Lion, the Lyme 6000, features a high resolution 14-inch colour screen providing an eight colour display. It is supported with a selection of software options, including alternate character sets, colour graphics packages and full compatibility with other terminals.

Gresham Lion (CW), Gresham House, Twickenham Road, Feltham, Middlesex. Tel: 01-894 5511.

Telex message entry system

A HIGH-SPEED OCR system for telex message entry that is claimed to be less than half the cost of other available systems has been developed by Mitsui Computers.

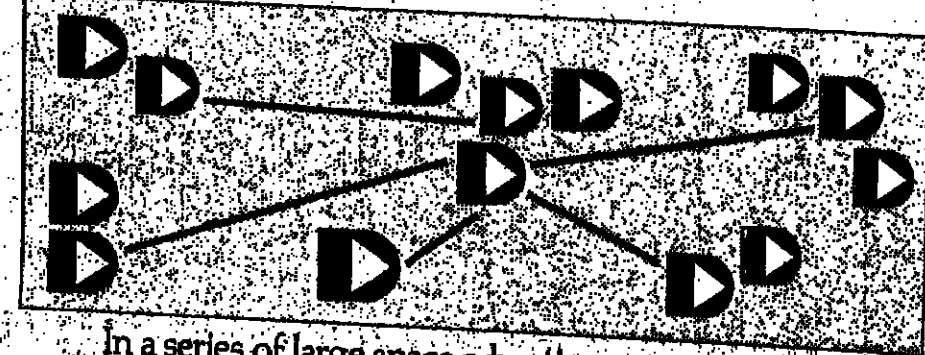
Called Telexreader, the system, which utilises Mitsui's latest desktop OCR machine, the TO-5000, and its CR-3000 message entry intelligent display terminal, costs about £10,000.

Messages for telex transmission are fed into the TO-5000, which scans at 300 chps, and from there they appear on the screen of the CR-3000 for editing and verification before transmission.

Mitsui Computers (CW), Oakcroft Road, Chessington, Surrey KT9 1SA. Tel: 01-397 5111.

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Datapoint (UK) Limited, Ventek House, 400 North Circular Road, London NW10 0JC. Tel: 01-459 1222, Telex: 923038.

Solid-state printing technique

A DESK-TOP printer claimed to be totally silent when on standby and almost inaudible when printing, is announced by Philips. It employs a new solid-state printing technique based on the momentary heating of tiny resistors, which means that the only moving part required is the platen that advances the heat-sensitive paper.

The Philips Copy 80 printer is a microcomputer-controlled line printer intended primarily as a high-speed hard-copy device for visual display terminals.

The machine may also be connected directly to a private telex exchange as a receive-only terminal, or via a modem to a telephone line for use in news rooms and elsewhere.

The machine's printing width of 80 characters per line and printing speed of 240 lines/minute mean that a 25-line screenful of information can be printed out in just over six seconds.

Philips Elektronikindustrier AB (CW), S-175 88 Järfälla, Sweden. Telephone: +46 758 10000. Telex: 115 05 PRAB S.



The Philips Copy 80 printer.

Versatile range of terminals

A RANGE of high performance matrix printer terminals from Peripheral Hardware comprises three machines: the series PH 1000, 2000 and 4000 from which eight different versions can be derived to meet a variety of applications.

The features will permit any of the machines to operate either as a hard copy printer (RO version) or as a printer-terminal with keyboard (KSR version), while for graphic representation a printer plotters is available.

The series 1000 and 2000 machines have printing speeds of 150 chps and 200 chps respectively but higher speeds of 165 chps up to 280 chps (with software or electronic switchable alternatives) are available on the series 4000.

A very high resolution of the matrix permits printing in correspondence quality at a speed of 85chps, switchable to 170chps. Proportionally spaced printing is also available as an option.

Peripheral Hardware Ltd (CW), Armadale Close, East Molesey, Surrey. Tel: 01-941 4806.

Memory up, cost down

NEW memory boards for Microfin Systems' portable data capture terminals significantly increase the memory size while substantially reducing the cost, says the company.

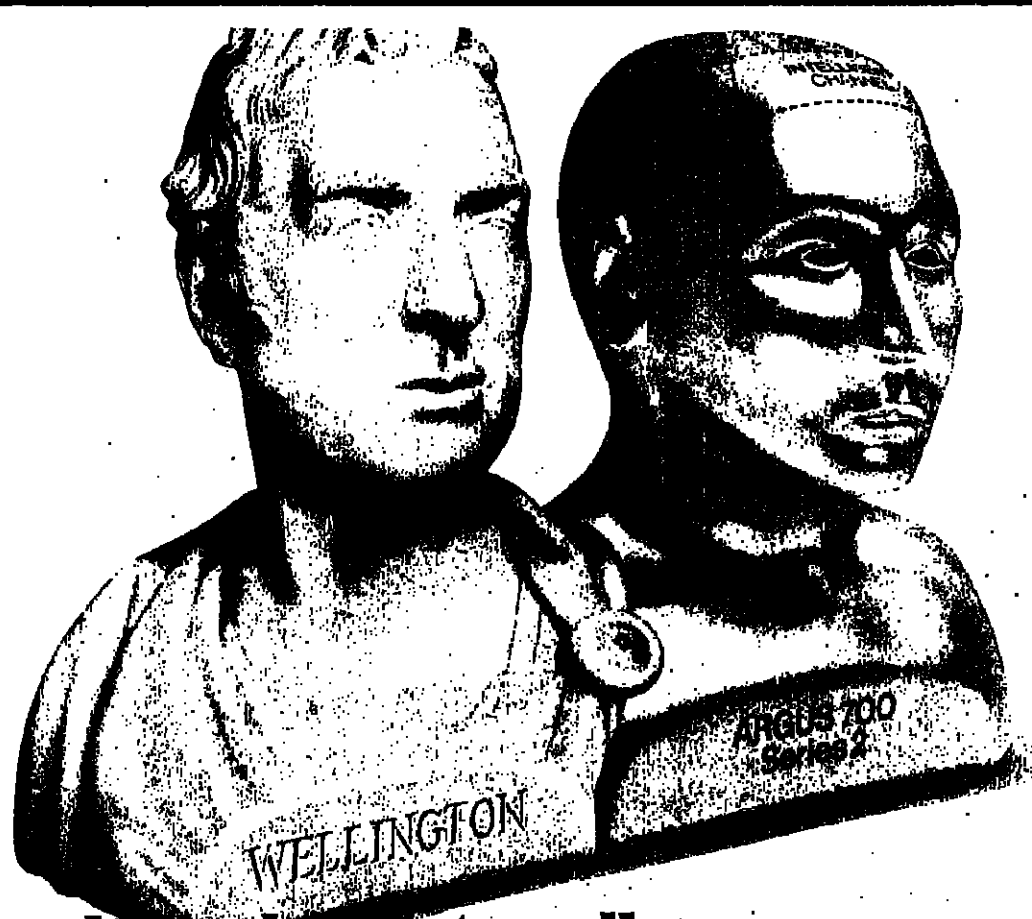
The maximum EPROM memory size has been increased from 8K to 32K and the maximum CMOS RAM memory size from 16K to 32K.

The new memory boards have enabled Microfin to reduce the overall cost of its portable data

capture systems by between 10% and 20%.

The larger memory size adds further flexibility to the Microfin portable data capture systems by increasing the range of applications. These now include information files where large information files need to be contained in the terminal before further data is collected.

Microfin Systems (CW), Winslade House, Egham Hill, Egham, Surrey, TW20 0AZ. Telephone: (0784) 37674.



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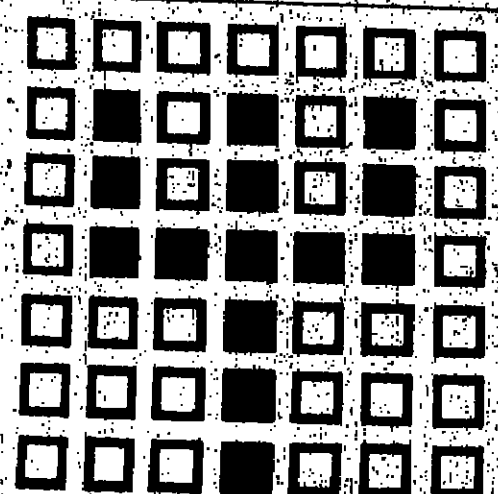
PERMANENT

0276 64252

The Trident Permanent Recruitment Division provides a confidential consultancy service to all levels of Data Processing staff ranging from Operator to Executive Manager.

Our National/International clients currently have ongoing requirements particularly for Programmers and Analysts with proven expertise of on-line and Database Management Systems.

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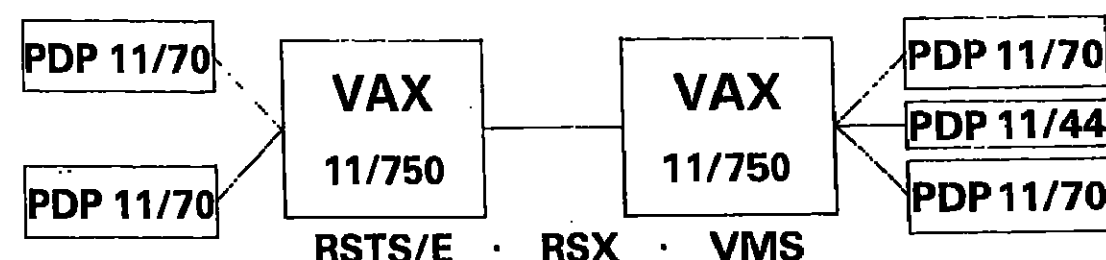
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- Sound academic qualifications
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Initial interviews will be conducted in London.

Barry Latchford Associates

Blair House, 7 Hazelgrove Road, Haywards Heath, West Sussex RH16 3PH

Tel: (0444)

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To assist in staffing these projects we need to enhance our Resources Team.

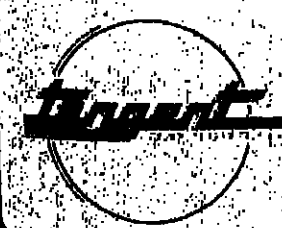
Ideally, you will have experience of computing terminology and have a track record of dealing with people.

We are looking for a RESPONSIBLE individual with a MATURE ATTITUDE to their work - a person of ACTION and COMMITMENT with the capability of thinking clearly and responding to the challenge of fast moving international situations.

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Please write, or telephone, in accordance to:



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Telephone: Romford 750201

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The above satellite is due to be launched at the end of 1982. Experienced programmers are required to help prepare the software for handling the data for the Infrared Astronomical Satellite (IRAS) Survey part of the programme. A background in astronomy would be an advantage. Programmers will be based at University College with Professor R. E. Jennings but will also be required to work in collaboration with the IRAS team at the Rutherford Appleton Laboratories at Chilton, Bedfordshire, and possibly elsewhere. The appointment would be for approximately three years with starting salaries in the range £8,800 - £10,100 p.a. to £10,100 - £12,000 p.a. depending on experience. Applications with a curriculum vitae should be sent to the Personnel Office (Technical), UCL, University College London, Gower Street, London WC1E 6BT. (B437)

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and
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Applications are invited from graduates for a systems/programming post in the University's Computer Centre which is responsible for computing services across the campus. There are important developments in interactive programming, networks and microcomputers. Candidates with experience of microcomputers would be at an advantage; there are opportunities for special responsibility in this area. Salary £2,855-£10,575 with prospects of extension to £12,850. The appointment will be in the lower half of the scale. Further information and application forms from Paul Johnson, Establishment Officer ref. 828 CC, Loughborough, Leicestershire LE11 3TU. (B437)

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We already hold a significant market lead in police information systems, and plan an increasing share of the computer-aided policing market - both at home and abroad - over the next few years.

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We have a number of very interesting commercial and technical developments in the pipeline, and the successful candidate (who would enter our police project team at a senior level) will be exceptionally well placed to make significant career progress with us.

Based at the Greenford headquarters of our Professional Services Division, the post carries a very attractive range of large-company benefits in addition to the starting salary of up to £15,000.

To find out more about the job, contact David Robinson on 01-578 9111. Alternatively write to him with full personal and career details at Data Logic Limited, 320 Ruislip Road East, Greenford, Middlesex.



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Ref: CW1102/1

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£9,000-£11,000**

Our Client is a dynamic and highly successful medium sized engineering company which manufactures a high technology product and uses the most advanced computing techniques available, based on an IBM 4331.

A Systems Analyst is required to support the Project Leader of a COPICS system which is about to be implemented. Whilst COPICS experience is not essential, you should have at least three years' experience in an engineering or manufacturing environment and be capable of taking a system from specification to implementation.

You should be flexible in your approach to your work as the Company does not believe in rigid terms of reference but rewards initiative and enterprise. We expect you to be good at, and enjoy, user contact from shop floor to board level.

Job satisfaction is guaranteed, as you will be given total responsibility for a specific area and will be using pioneering technology. Working conditions are excellent, with modern offices and production unit set in this attractive part of the country. Your planned career progression will be detailed at interview.

For further information, please contact **MARK IRENS**, Advising Director, quoting reference CW0402/2.

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The following experience is required:

* Mini computer experience, ideally but certainly not necessarily on CMC REALITY.

* Manufacturing systems experience.

* The ability to understand complex user requirements and translate these into detailed D.F. implementation plans.

* Experience in controlling a small team of analysts and programmers.

This is seen as a ground floor opportunity for a person with the relevant background to gain his or her first experience of project management.

For further details, please contact **MARK IRENS**, Advising Director, quoting reference CW0402/3.

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The Company: A successful and well-established industrial organisation which forms part of a large and diverse multi-national group. The Company has been using computers since the 1960's and is currently developing a number of sophisticated applications on its IBM 3031 and 4341 mainframes under OS/VS1. Extensive use is made of the TOTAL Database and ENVIRON i.p. monitor. As a result of the expansion of their d.p. activities, our client seeks to recruit for the following positions. Good career prospects exist within the Company together with the possibility to transfer within the group.

**Systems Analyst
c. £18,500**

Applicants must have good commercial systems experience, preferably in an IBM environment. The position will involve responsibility for the development of a number of financial systems.

Benefits:

- * Single or family status
- * Free furnished accommodation in modern bungalows
- * Five weeks' paid leave annually - paid return flight to the U.K.
- * Free primary schooling

For further details, please telephone or write to Andrew Cousins quoting ref 5731

**Analyst/Programmer
c. £15,500**

Applicants must have a good IBM COBOL experience and have had some exposure to systems design.

**Programmers
c. £14,000**

Applicants should have at least 2 years' IBM COBOL experience in an OS environment.

- * Considerable assistance towards secondary education for eligible children
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- * Free medical/dental attention for all employees

**Lloyd Chapman
Associates**

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IBM people - Midlands

Our client finds that the new year has brought exciting new development work from their customers. The company is a leading Midlands systems house, specialising in the IBM marketplace. Their reputation for the quality of their staff is second to none. If you feel the demanding, professional, exciting world of a systems house would be of interest then these vacancies will suit you.

The projects undertaken are of a wide variety, covering most of the IBM range of equipment, including newly announced products. The same is true of the languages, teleprocessing and database techniques which are in use.

A few of the benefits are shown alongside, but the major factor must be the chance to really progress one's career in a positive way.

**Programmers
£7,500 - £9,500**

We seek people who have IBM programming skills, using COBOL or PLI. Commercial use of these languages is required, on any IBM type equipment.

Additional skills in teleprocessing or database techniques such as CICS, DLI or IMS DC would be very valuable.

Please contact **Mike Hession** - 021 236 2929 (24 hrs) to discuss these vacancies, Ref H47/01.

- ★ Salary reviews every six months
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- ★ Five weeks holiday, flexitime
- ★ Bonus, expenses and car allowance
- ★ Variety of development projects

**Analyst/Programmers
£8,000 - £12,000**

The skills for these requirements are similar to the ones mentioned opposite. In addition, we will be looking for an element of program design and system design in your background. Experience of team or project management would also be of great interest.

S.R. RECRUITMENT

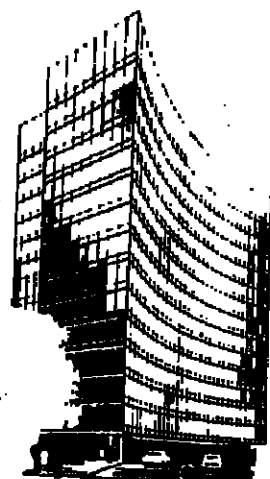
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Zurich life

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Around 3 years' analysis experience in a commercial environment, preferably with a background in programming and some experience of DB/DC. Insurance experience an advantage.

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A minimum of 3 years' Cobol programming experience is essential, preferably with some experience of structured programming techniques and of CICS and/or DL/1. Job responsibilities will include preparation of program specifications and supervision of Programmers and Trainee Programmers within a project team.

Our Company offers a first-class working environment in a modern, prestige office, together with the following benefits:

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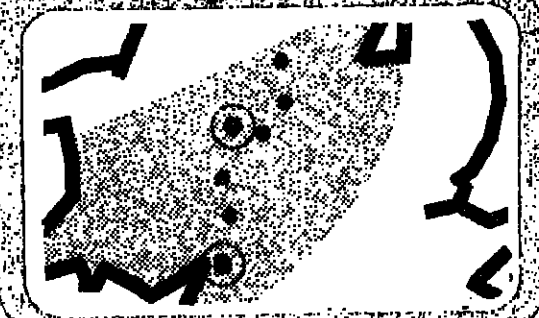
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The Midlands



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Required by a systems house in the West Midlands area, to support the sale of turnkey mini computer systems. Must have good communicative skills in both a technical and marketing environment. Please phone Rod Beeson or fill in the coupon below quoting ref: RB/J0052.

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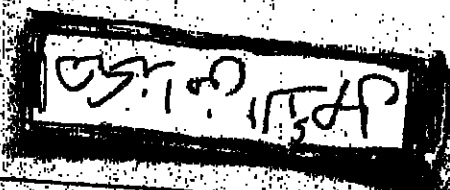
Their service covers a wide range of hardware, including mini and micro-based systems with their associated peripherals. The quality of their service is reflected by the fact that many leading UK distributors not only recommend them to their major accounts, but also involve them in critical pre-sales negotiations.

The company has a rare opportunity for a sales and marketing professional to handle negotiations with major accounts and distributors. A flair for closing orders is essential as they have an abundance of enquiries. Experience of large company sales/marketing and/or running one's own business would be advantageous. Applicants are welcome from any sector of the DP industry, and familiarity with Bureau or OEM environments is preferable.

The remuneration package is negotiable, and will include a basic salary with an initial guarantee and appropriate fringe benefits. Gross earnings as high as £40,000 are possible and the current five year business plan provides an excellent long term career path for a person with imagination.

For further information, please contact Peter Lloyd on 01-631 4184 or write to him at: A & A Consultants Limited, 10 Little Portland Street, London W1N 5DF.

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£14,000 to £18,000

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Candidates will be required to demonstrate extensive previous experience in the development and control of real time computer systems based on large minis, e.g. VAX and Honeywell.

Candidates must have up-to-date experience in structured design and implementation techniques as well as experience in estimating, resourcing, project planning and control.

Their career to-date will show an above average rate of progress, variety of experience and previous positions of responsibility. It is unlikely that suitably qualified candidates will be below the age of 30.

The Position

The successful candidate will be responsible for one or more projects being undertaken on behalf of clients. This could require different responsibilities on different projects simultaneously. Self presentation in the form of written and oral communication is a normal and regular requirement of the job as is a professional manner with clients and staff. The opportunities for advancement are excellent. The position is based in Central London although some travel to client sites will be required.

The Company

Our client is a successful, profitable and expanding company with an international reputation for advanced computing and communications skills. They provide services and products in various countries around the world to major companies, professional bodies, and government organisations. For employees the company provides an excellent range of benefits including relocation assistance where appropriate. Prospects for advancement and long term career development are excellent.

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ANALYST/PROGRAMMER
PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
ANALYST/PROGRAMMERS
ANALYST/PROGRAMMERS

SYSTEMS PROGRAMMERS

IBM MVS
IBM OS/VS1 VTAM VSPC
ICL
ICL ME29 IDMS + COBOL + TIME
ICL SYSTEM 10/25 + MACHINE CODE
ICL 2900 VMEB/IDMS + TP
ICL (OR IBM) APL
ICL 2900 + APS MANAGER
ICL 1900/2900 GEORGE 2 PLAN + COBOL
ICL 2900 DME COBOL TPS
ICL 2900 VMEB IDMS TMS (APRIL)

SYSTEMS PROGRAMMER
SYSTEMS PROGRAMMER

PROGRAMMERS
TECH AUTHOR
PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
DESIGNERS

OTHERS

HP 3000 IMAGE VIEW QUERY
HONEYWELL LEVEL 64 IDS TDS COBOL
HONEYWELL LEVEL 8 SCREENWRITE
DEC PDP11 RSX11M MACRO2 + DECNET
TANDEM
MOTOROLA 6800 ASSEMBLER
UNIVAC 1100 DMS 2 COBOL
PDP11 RSTS/E BASIC +
D.G. AOS COBOL
PRIMEFORTRAN COBOL

PROGRAMMERS
ANALYST/PROGRAMMERS
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ANALYSTS

VAX 11/780 VMS (DISTRIBUTION SYSTEM)
BURROUGHS 6800 STOCK + PRODUCTION
CONTROL
IBM PRODUCTION/STOCK CONTROL
IBM + BANKING EXPERIENCE
IBM OS/COBOL INSURANCE SYSTEMS EXPERT
ADABAS
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ICL 2900 IDMS COBOL
INTEL 80/80 ASSEMBLER (NEW YORK)
ICL ME28 + TIME + COBOL (DALLAS)
ICL 2900 VMEB/IDMS + TPS (FRENCH SPEAKING)
VAX VMS (GERMANY)

PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
PROGRAMMERS
SYSTEMS PROGRAMMERS

PROGRAMMERS + ANALYSTS WITH ANY OF THE FOLLOWING SKILLS:
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Preferably already living somewhere within this area, the successful applicant, male or female, will be responsible after initial product training for selling our full range of pen and electrostatic plotters, controllers, graphic COM systems, digitizers and graphics display terminals.

You will work mainly from home and we would expect you to have the following qualifications:-

- * proven experience and a good record in the sale of computer systems, peripherals or software.
- * a technical background and an understanding of scientific and engineering computer applications and, preferably, CAD.

This is an excellent opportunity to join the leader in the field and to manage your own territory. We offer a very attractive salary package, plus a company car, and other fringe benefits such as free BUPA membership.

If you are interested please write to or ring: Linda Barber, CalComp Ltd., Cory House, The Ring, Bracknell, Berks. Tel: 0344 60211.

CALCOMP
INTERNATIONAL DIVISION

Network Development

The Rutherford Appleton Laboratory, part of the Science and Engineering Research Council, supports scientific researchers throughout the country. The Computing Division, which provides large scale computing services, and co-ordinates computing research, programmes, has posts available in network development areas.

The Laboratory plays a major role in the development of the SERC X25-based network which covers most of the United Kingdom. It is also active in the field of high speed local networks both to support numerous on-site applications and to support research in computer networking. A number of Cambridge Ring projects are under way, and other technologies are being investigated. It is planned to set up a central data store served by a very high speed bus giving access to the local computers at disc speeds.

Computing facilities on-site include a large IBM complex, GEC, PRIME, PDP11, VAX, PERQ and other computers.

Applicants should have a degree in a numerate subject, computing experience and preferably some knowledge of computer networking.

Posts will be in the following grades:
Scientific Officer £5,170-£8,964
Higher Scientific Officer £8,530-£8,589
Research Associate £6,302-£8,589
(fixed 3 year term)

Some assistance with removal expenses may be allowed in appropriate cases. The Laboratory is a friendly community with its own restaurant and extensive sports facilities nearby. We offer excellent working conditions and benefits include a local transport service, generous holidays, sick leave allowance and a non-contributory superannuation scheme.

Contact Recruitment Office, Personnel Group, Rutherford Appleton Laboratory, Chilton, Didcot, OXON. OX11 0QX, or telephone (Abingdon 21900 Ext. 510) quoting ref VN 014.

Closing date for applications: 4th March 1982.

Rutherford
Appleton
Laboratory

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of research

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The team is concerned not only with the development of standard products but also with customised computer systems for use by materials scientists in our worldwide marketplace.

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In keeping with the high standards we maintain, the Company is able to offer an excellent starting salary with four weeks' holidays p.a. and appropriate fringe benefits which include a non-contributory pension and life assurance scheme. A contribution will be made towards relocation expenses if appropriate.

For an application form please ring the Personnel Department or write to the Personnel Manager enclosing a detailed C.V.

Instron Limited, Corporation Road, High Wycombe, Bucks HP12 3SY. Telephone: High Wycombe (0494) 33333.

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INSTRON

Manager Data Systems

Racal-Mobilcal Limited, is a leading member of the Racal Electronics Group and specialises in the design and manufacture of sophisticated mobile communications equipment.

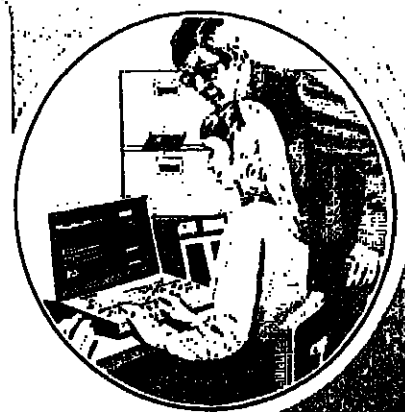
Geographically well placed in Reading, Berkshire, the Company is currently experiencing its most successful year and, in looking to advance still further technologically, seeks to recruit for its Engineering Department a DATA SYSTEMS MANAGER.

This position will carry the responsibility for all aspects of the Engineering Data Base Systems including PDS activities, P.C.B. layout, drawing reproduction

facilities and Company O & M services.

Applicants should be aged 35+ and be technically qualified to at least H.N.C. standard. At least 10 years' Drawing Office experience, including senior supervisory responsibilities is essential together with a knowledge of, and practical experience in, computer based documentation systems. Involvement in CAD/CAM techniques is highly desirable.

For this post—one which offers its own unique challenge—the Company provides a competitive remuneration package, over five weeks' annual holiday, pension and free life assurance scheme.



Assistance with re-location expenses will be given in appropriate cases.

Letters of application, stating age, qualifications, experience, and salary expectations should be addressed in confidence to:-

Mr. G. E. Fisher,
Personnel Manager,
Racal-Mobilcal Limited,
464 Basingstoke Road,
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RACAL

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Based on one of London's most modern and stimulating computer bureau environments, you'll be applying your skills to SIGMA and DEC 10 complexes, including IBM plug compatible peripherals. Specialist computer training is available if necessary, but you must be appropriately qualified (to CNC or equivalent level) with at least three years' maintenance or field engineering experience. Specifically, we require you to have knowledge of: maintenance of mini/mainframe CPU; fault finding; repair at chip level; maintenance of disc and tape drives and Assembler level programming.

Meet us at The Portland Hotel,
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Wednesday, February 17th
Anytime between
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or Telephone London Office any day
01-253 1066 (reverse charges if you wish)

Whether you walk in to meet our Engineering Manager or talk to Helen Gardiner, our Personnel Director, over the phone, you will be able to discuss all the rewards and career prospects that only a major organisation can provide. But if neither alternative is possible, just write for an application form to United Computing, United House, 58/64 Leonard Street, London EC2A 4AN.

United Computing

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Transportation Branch

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£5,000-£7,137

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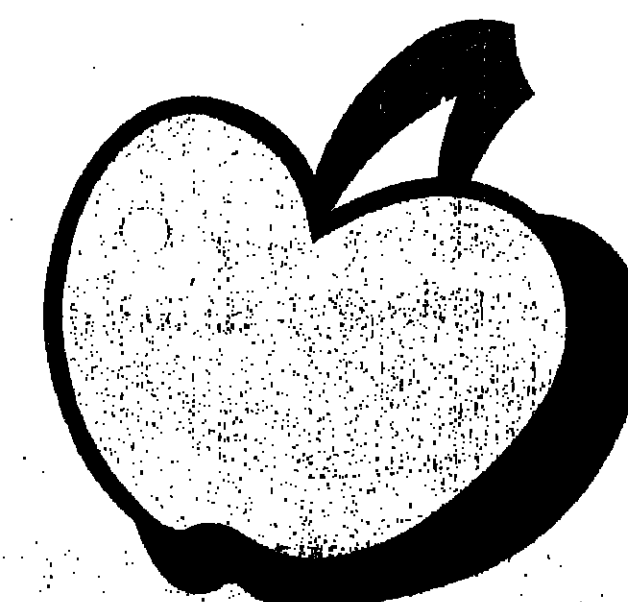
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Travicom

require microprocessor development staff to work on their multi-access reservation system. Applicants should have an active interest in microprocessor software, and hardware and be able to work on their own initiative. Travicom systems use 280 microprocessors.

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IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.
IBM 4341	VS/VS2	VS/VS2	COBOL or PLI	Programmer & Anal./Prog.	London, Herts.

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IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London

VARIED ASSIGNMENTS

Hardware	Operating System & Software	Package/Database etc.	Language	Position	Location
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
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IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London

OVERSEAS

Hardware	Operating System & Software	Package/Database etc.	Language	Position	Location
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
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IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London
IBM 4341	VS/VS2	VS/VS2	COBOL	Programmer & Anal./Prog.	London, Essex, Middlesex, London

Integrated Circuit Design Automation

Texas Instruments is a dynamic international company working at the heart of the micro-electronics revolution and is constantly expanding its activities. One of our key growth areas is the automation of integrated circuit design and to support this activity we will shortly be commissioning an IBM 4341 installation which will be running MVS and TSO.

Against this background, we now need to recruit the following Systems/Software professionals for our Design Automation Department in Bedford.

Installation System Manager

To ensure the efficient use of the new machine and be responsible for user training and consultancy activities and the supervision of every aspect of its day-to-day operation. You should have experience of IBM operating systems, preferably including MVS and possibly gained in a technical research and development role. Good communications skills will be essential.

Senior Software Engineer

We are also looking for a Senior Software Engineer with experience of CAD-type programs (e.g. in support of integrated circuit design and development) to assume responsibility for one of our DA project areas. Design automation tools include logic and schematic simulators, compilers and layout geometric and schematic verification tools implemented in FORTRAN and PASCAL.

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A vacancy exists in our COBOL programming team based initially at Risley, but with relocation to Knutsford, Cheshire in 1983.

The successful candidate will have at least two years' COBOL experience on DEC or IBM equipment, be qualified to degree level and will not be less than 22 years old. Essential requirements will be self motivation, ability to work with minimum supervision and be capable of completing projects to time scale.

The Company will offer a competitive salary to the right person. In approved cases, the Company will offer an attractive relocation package including agent and legal fees. There are the usual large company benefits including contributory pension and life assurance scheme plus contributory private medical insurance scheme.

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Candidates should have a graduate qualification or equivalent in computer science or electronic engineering and have experience in the development of software using PASCAL or a similar high level language.

Two posts are available for 48 months and two posts for 42 months. Starting salary will be up to £3,800 per annum on the fixed scale £3,070-£10,576 per annum according to age qualifications and experience.

Applicants should send a curriculum vitae and the names and addresses of three referees to Professor D. J. Kinniburgh, Department of Electrical and Electronic Engineering, The Mars Laboratories, The University of Newcastle upon Tyne NE1 7PL from which further particulars can be obtained.

The closing date for receipt of applications is 15th February 1982.

CANADA

A major company in the petrochemical industry in Calgary is seeking experienced Programmers, Analysts and Computer Personnel of all levels.

Experience with IBM computers would be preferred but not essential.

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Candidates are required for two new positions created within the development group of this expanding computer manufacturer. You will have a software background with reasonable knowledge of hardware. Your task will be the technical verification of complete systems for performance in design specifications. You will need the competence to derive and prove your own benchmarks.

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Programme management is a staff function which operates across multi-discipline management lines to ensure the timely development and release of products within budget and marketing constraints. Candidates need to have a software and hardware background with development experience covering micros, W.P. comms. & O.S. They should be competent in planning and estimating with a firm but tactful manner.

Progs. to Team Leaders

W. Country £8K to £12K

This is an excellent ground floor opportunity for a range of good software people to join a new team being specially formed to develop an advanced micro based, office system product. Your background should be in systems software plus comms. and local area networks. You will work in an advanced block structured language. Reloc. where necessary.

Message Switch

London c. £9,500

An international bank with advanced message switch and communications systems based on DEC PDP 11/34 and 11/70 equipment. Is seeking an additional programmer to work in their communications group. Candidates will require RSX11/Macro-11 experience and preferably a knowledge of data communications. Superb working conditions. Attractive benefits: Low interest loans and mortgage, free restaurant, etc.

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Berks. c. £12K + car

You will be responsible for the latest stage in the development of a multi-site message switching system. Computer centres in several major cities are already in operation. Candidates will liaise with sales, development, vendors and official agencies in negotiating product implementation and installation. Some pre and post sales support is involved. Telecommunications experience is essential.

Networking Software

Beds/Herts. £10K-13K+

You will be an experienced data comms. person, probably with a background in bsync. protocols. In more recent times you will have been involved in X25 projects and be up-to-date on recent developments in networking. Tasks vary from internal consultancy to team leader responsibility for design and implementation. Positions are with expanding engineering development groups.

Pre-Sales Support

Berks. c. £13K + car

We would like to meet candidates with several years software experience who are interested in joining the special systems group of an international computer manufacturing company. Your tasks will be evaluating operational requirements and technical analysis on non-standard product content in system proposals. You will be part of a small team working closely with sales.

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HR

SCOTTISH HEALTH SERVICE COMMON SERVICES AGENCY COMPUTER CENTRE

Intermediate Systems Designers

Ref. No. U407

Basic Systems Designer

Ref. No. U408

Vacancies exist at the Agency's new computer centre for the above staff to help convert existing systems and design new ones for a recently installed I.C.L. 2860, Data Dictionary and the use of Database software is being planned together with communications and micro systems.

Candidates for the Intermediate posts will be expected to have two or three years' relevant postgraduate experience or have had equivalent training. Basic Systems Designers should be graduates with at least one year's computer experience in programming or systems. In all cases candidates must demonstrate good communications skills both oral and written.

Salary Scales Ref. No. U407 A & C Scale 9 - £7,554 to £9,277 p.a. and Ref. No. U408 A & C Scale 4 - £5,894 to £6,147 per annum

Application form and further details can be obtained from the Appointments Section, Common Services Agency, Trinity Park House, South Trinity Road, Edinburgh EH6 3SE. Complete applications should be returned by 24th February, 1982. Please quote appropriate reference number. (0402)

St. Thomas' Hospital
London SE1 7EH

Temporary Computer Programmer in EEG

Salary Scale £5,978-£7,543 inclusive

To work on a monthly contract to write the software required in interfacing departmental EEG equipment with PDP.11-34 and Apple systems. Previous PDP.11-34 experience essential. Previous signal analysis expertise an advantage.

For further details telephone the EEG Department on 01-600 2222 Ext. 2186 or for a job description and application form telephone the Personnel Department on Ext. 2322. (0471)

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Bristol Polytechnic Computer Centre

The Polytechnic has a large and rapidly expanding multi-discipline user base. To provide the necessary service to this base the Computer Centre is about to take delivery of two Prime 880s which will add to the present equipment as the next phase of its plan to provide 180+ simultaneous terminal ports. Applications are invited for the following Computer Centre posts to assist in this development.

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Grade A9 - Salary £2,871-£2,875 per annum - Ref A/110
To support the Department of Engineering and Department of Construction and Environmental Health primarily at the Ashley Down site.

Senior Programmer

Grade A9 - Salary £2,871-£2,875 per annum - Ref A/109
To support the Computer Centre nucleus at the Franchise Site.

Senior Programmer

Grade A9 - Salary £2,871-£2,875 per annum - Ref A/111
To support the Department of Graphic Design and the Computer Centre nucleus between the Bower Ashton and Franchise sites.

Part-time Senior Programmer

Grade A9 - Salary £2,871-£2,875 per annum - Ref A/112
To support the Department of Town and Country Planning, primarily at the St. Matthias site.

For further details and application forms, to be returned by 22 February 1982, please contact the Personnel Office, Bristol Polytechnic, Goldharbour Lane, Franchise, Bristol, or ring Bristol 045251 Ext 210 or 217.

Please quote appropriate Reference Numbers in all communications. (0401)

UNIVERSITY OF ESSEX

Senior Lecturer/Reader, Lecturer and Two Temporary Lecturers in the Department of Computer Science

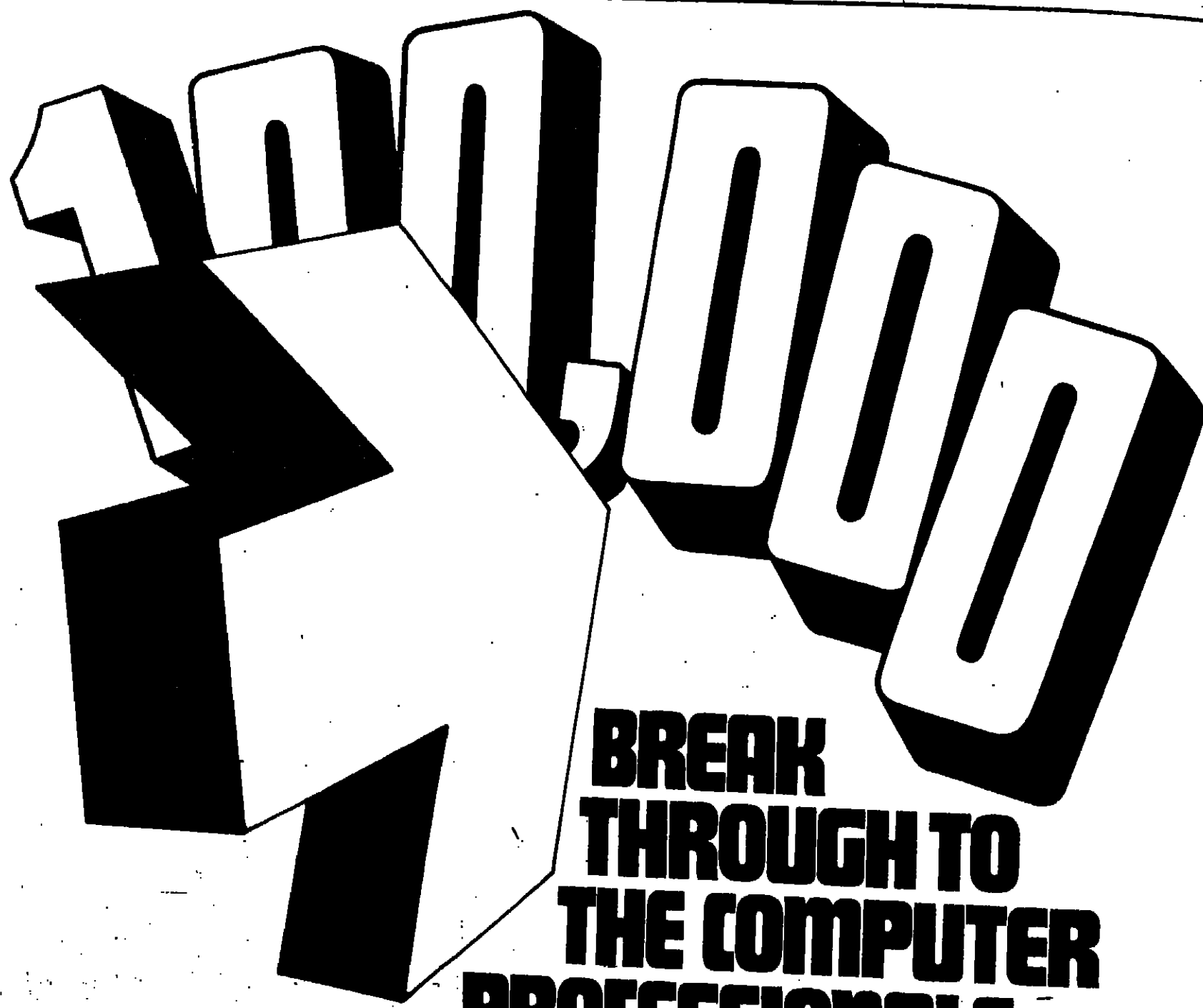
Applications are invited for four posts in the Department of Computer Science. Two permanent posts and two temporary lecturers, each for a period of two years. The appointments will be from 1 October, 1982. Salary Scales: Senior Lecturer (£12,305-£14,140) Lecturers (£6,970-£12,860).

Suitably qualified applicants from any branch of Computer Science will be considered but priority will be given to applicants who are experienced in one or more of the following areas:

'Artificial Intelligence
Data base systems
Distributed systems
High level languages – their design and implementation

For this Senior Lectureship/Readership, we are seeking a person with a well proven record of research who can clearly demonstrate continuing and active research interest in one of the areas above.

Applications (in triplicate, including a curriculum vitae and the names and addresses of three referees, should reach the Registrar (Academic) AG/133* for the Senior Lectureship or AG/134* for the Lectureship. University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars may be obtained, by 5 March, 1982. (0428)



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Computer Weekly
100,324 ABC Jan.-June 1981

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Minimum 5 years DP including 2 years Systems Analysis. The position is managerial and the promotion prospects are excellent.

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Minimum 3 years in on-line environment. Knowledge of some of: - OS/JCL, OS/VS1, ASSEMBLER, COBOL, CMS, VTAM, VSAM. Prospects excellent.

Assembler Programmer
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3 years. Knowledge of 370 Assembler. Preference given to people with knowledge of VTAM/CICS. Prospects excellent.

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Excellent relocation allowances
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Pension, life and medical schemes
20 days annual leave
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Assistance with housing
For the more senior positions a company car and expenses and the use of company holiday flats in Durban and Cape Town.

Interviews held in London last two weeks of March.

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Senior Software Programmers	IBM, MVS, CICS
Senior Project Leaders	Engineering, scientific financial or banking applications
Project Leaders	Engineering, scientific financial or banking applications
Analyst Programmers	Financial or banking applications
Systems Analysts	Engineering or scientific applications
Software Programmers	Prof IBM minimum 2 years
Database Analysts	Prof IBM minimum 2 years
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Senior Software Controller

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Responsibilities will include: -
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Full product training will be given in the USA.

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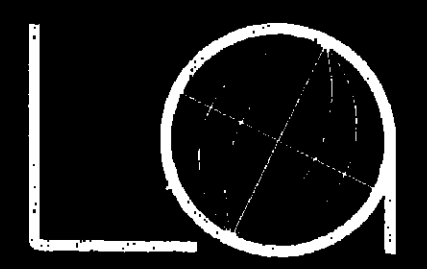
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(0488)

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The task will involve responsibility for analysing users' requirements and providing advice and guidance, for assisting in the formulation of computer service policy and for training programming staff.

Winthill is a major R&D Laboratory of the United Kingdom Atomic Energy Authority with considerable experience in the usage and development of complex computer codes for its scientific and engineering programmes. The job and applicants should therefore have at least two years' direct experience of applying computer systems to commercial and technical work and to have a good background knowledge of ICL COBOL.

Initial appointments will be to a grade with a starting salary in the range £4,355 to £5,445 p.a. Applicants with relevant experience may, however, be eligible for a starting salary higher in the scale, which rises to a maximum of £7,755 p.a. Good promotion opportunities exist for advancement to the next grade with a salary of £7,800 to £9,500 p.a. In addition, the Authority provides an excellent package of benefits including an excellent contributory superannuation scheme.

Applications to: United Kingdom Atomic Energy Authority, Personnel Department 'B', AEE, Winthill, Chesham, Bucks. HP8 4JF. Quoting reference No. W.B.354. Closing date for applications: 12th March, 1982.

(0488)

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To take responsibility for the development of all new systems. At least 5 years' experience in commercial applications is required preferably with some involvement with NCR hardware.

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(0485)

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(0491)

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(0485)

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(0488)

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ComputerWeekly

February 18th, 1982

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